

Kailas Nath Shukla

ELEMENTS

OF

LOGIC,

EXTRACTED FROM THE WORK OF

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ADVERTISEMENT.

THE misconception of the nature of Logic, and its consequent neglect, long prevalent in England, and mainly due to the writings of Mr. Locke,—of whom Leibnitz justly remarked that “*Logicam sprexit, non intellexit*,”—is now going out of fashion; and except in second-rate spheres of society, it is no longer considered the mark of a sound and practical understanding to be ready with a compassionate smile at the mention of the name of the “Science of the Laws of Thought.”

It is a favourite remark of the followers (consciously or unconsciously) of Mr. Locke, that men have reasoned, and do reason, very well without having studied Logic. We admit it, and also that many men speak very well without having studied grammar, and even calculate dexterously without having studied Arithmetic. Dr. Chalmers rightly insists upon this fact, when vindicating the competency of the popular understanding to judge of the evidences of religion; but at the same time he makes an admission which concedes all that we shall at present claim, in favour of the following compilation, at the hands of those interested in the education of India. “We dispute not (says Dr. Chalmers—Works, Vol. III. p. 30,) the use of logic—for the study of it implies, first, attention to the actual specimens or examples of valid argumentation—and then a recognition, by the mind, of what that is which constitutes its validity—and we cannot well be so engaged without becoming more expert both in the practice of reasoning and in the detection of any flaw or infirmity in the process.”

J. R. B.

Benares College,
27th May, 1853. }

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PREFACE.

ON the utility of Logic many writers have said much in which I cannot coincide, and which has tended to bring the study into unmerited disrepute. By representing Logic as furnishing the sole instrument for the *discovery of truth* in all subjects, and as teaching the use of the *intellectual faculties* in general, they raised expectations which could not be realised, and which naturally led to a re-action. The whole system, whose unfounded pretensions had been thus blazoned forth, came to be commonly regarded as utterly futile and empty: like several of our most valuable medicines, which, when first introduced, were proclaimed, each, as a panacea, infallible in the most opposite disorders; and which consequently, in many instances, fell for a time into total disuse; though, after a long interval, they were established in their just estimation, and employed conformably to their real properties.

If it were inquired what is to be regarded as the most appropriate intellectual occupation of MAN, *as man*, what would be the answer? The Statesman is engaged with political affairs; the Soldier with military; the Mathematician, with the properties of numbers and magnitudes; the Merchant, with commercial concerns, &c.; but in what are *all* and each of these employed?—employed, I mean, as *men*; for there are many modes of exercise of the faculties, mental as well as bodily, which are in great measure common to us with the lower animals. Evidently, in *Reasoning*. They are all occupied in deducing, well or ill, Conclusions from Premises; each, concerning the subject of his own particular business. If, therefore, it be found that the process going

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on daily, in each of so many different minds, is, in any respect, the *same*, and if the principles on which it is conducted can be reduced to a regular system, and if rules can be deduced from that system, for the better conducting of the process, then, it can hardly be denied that such a system and such rules must be especially worthy the attention,—not of the members of this or that profession merely, but—of every one who is desirous of possessing a cultivated mind. To understand the theory of that which is the appropriate intellectual occupation of Man in general, and to learn to do that *well*, which every one will and *must* do, whether well or ill, may surely be considered as an essential part of a liberal education.

Even supposing that no practical improvement in argumentation resulted from the study of Logic, it would not by any means follow that it is unworthy of attention. The pursuit of knowledge on curious and interesting subjects, for its own sake, is usually reckoned no misemployment of time; and is considered as, incidentally, if not directly, useful to the individual, by the exercise thus afforded to the mental faculties. All who study Mathematics are not training themselves to become Surveyors or Mechanics; some knowledge of Anatomy and Chemistry is even expected in a man liberally educated, though without any view to his practising Surgery or Medicine. And the investigation of a process which is peculiarly and universally the occupation of Man, considered as Man, can hardly be reckoned a less philosophical pursuit than those just instanced.

It has usually been assumed, however, in the case of the present subject, that a theory which does not tend to the improvement of practice is utterly unworthy of regard; and then, it is contended that Logic has no such tendency, on the plea that men may and do reason correctly without it: an objection which would equally apply in the case of Grammar, Music, Chemistry, Mechanics, &c., in all of which systems the practice must have existed previously to the theory.

But many who allow the use of systematic principles in other things are accustomed to cry up Common-Sense as the sufficient and only safe guide in Reasoning. Now by Common-Sense is meant, I apprehend, (when the term is used with any distinct meaning,) an exercise of the judgment unaided by any Art or system of rules: such an exercise as we must necessarily employ in numberless cases of daily occurrence; in which, having no established principles to guide us,—no line of procedure, as it were, distinctly chalked out,—we must needs act on the best extemporaneous conjectures we can form. He who is eminently skilful in doing this, is said to possess a superior degree of Common-Sense. But that Common-Sense is only our *second-best* guide—that the rules of Art, if ju-

diciously framed, are always desirable when they can be had, is an assertion, for the truth of which I may appeal to the testimony of mankind in general; which is so much the more valuable, inasmuch as it may be accounted the testimony of *adversaries*. For the generality have a strong predilection in favour of Common-Sense, except in those points in which they, respectively, possess the knowledge of a system of rules: but in these points they deride any one who trusts to unaided Common-Sense. A Sailor *e. g.* will, perhaps, despise the pretensions of medical men, and prefer treating a disease by Common-Sense: but he would ridicule the proposal of navigating a ship by Common-Sense, without regard to the maxims of nautical art. A Physician, again, will perhaps condemn Systems of Political-Economy,* of Logic, or Metaphysics, and insist on the superior wisdom of trusting to Common-Sense in such matters; but he would never approve of trusting to Common-Sense in the treatment of diseases. Neither, again, would the Architect recommend a reliance on Common-Sense alone, in building, nor the Musician, in music, to the neglect of those systems of rules, which, in their respective arts, have been deduced from scientific reasoning aided by experience. And the induction might be extended to every department of practice. Since, therefore, each gives the preference to unassisted Common-Sense only in those cases where he himself has nothing else to trust to, and invariably resorts to the rules of art, wherever he possesses the knowledge of them, it is plain that mankind universally bear their testimony, though unconsciously and often unwillingly, to the preferableness of systematic knowledge to conjectural judgments.

There is, however, abundant room for the employment of Common-Sense in the *application* of the system. To *bring* arguments, out of the form in which they are expressed in conversation and in books, into the regular logical shape, must be, of course, the business of Common-Sense, aided by practice; for such arguments are, by supposition, not as yet within the province of Science; else they would *not* be irregular, but would be already strict syllogisms. To exercise the learner in this operation, I have subjoined in the Appendix, some examples, both of insulated arguments, and of the analysis of argumentative works. It should be added, however, that a large portion of what is usually introduced into Logical treatises, relative to the finding of Arguments,—the different kinds of them, &c., I have referred to the head of *Rhetoric*, and treated of in a work on the Elements of that Art.

It should be observed however that all technical language (as well as all rules of art) must be expected to present, at first, a difficulty for the learner to surmount; though, in the end, it will greatly facilitate his procedure. But with this view it is necessary that such language and rules should be not only distinctly *understood*, but also learnt, and *remembered* as familiarly as the Alphabet, and employed *constantly*, and with scrupulous *exactness*. Otherwise technical language will prove an encumbrance instead of an advantage; just as a suit of clothes would be, if instead of putting them on and *wearing* them, one should carry them about in his hands.

* See Senior's Introductory Lecture on Political Economy, p. 28.

No credit I am aware, is given to an author's own disclaimer of personal motives, and profession of exclusive regard for public utility; since even sincerity cannot, on this point, secure him from deceiving himself; but it may be allowable to observe, that one whose object was the increase of his reputation as a writer, could hardly have chosen a subject less suitable for his purpose than the present. At the time of the first publication the study was neither popular, nor, apparently, likely soon to become so. Ignorance, fortified by prejudice, opposed its reception, even in the minds of those who are considered as both candid and well-informed. And as, on the one hand, a large class of modern philosophers might be expected to raise a clamour against "obsolete prejudices;" "bigoted devotion to the decrees of Aristotle;" "confining the human mind in the trammels of the Schoolmen," &c., so, on the other hand, all such as really are thus bigoted to every thing that has been long established, merely because it has been long established, were likely to exclaim against the presumption of an author, who presumes to depart in several points from the track of his predecessors.

There is another circumstance, also, which tends materially to diminish the credit of a writer on this and some other kindred subjects. We can make no discoveries of *striking novelties*: the senses of our readers are not struck, as with the return of a Comet which had been foretold, or the extinction of a taper in carbonic-acid gas: the materials we work upon are common and familiar to all, and, therefore, supposed to be understood by all. And not only is any one's deficiency in the use of these materials, such as is generally unfelt by himself, but when it is removed by satisfactory explanations—when the notions, which had been perplexed and entangled, are cleared up by the introduction of a few simple and apparently obvious principles, he will generally forget that any explanation at all was needed, and consider all that has been said as mere truisms, which even a child could supply to himself. Such is the nature of the fundamental principles of a science—they are so fully *implied* in the most evident and well-known truths, that the moment they are fully embraced, it becomes a difficulty to conceive that we could ever have been not aware of them. And hence, the more simple, clear, and obvious any principle is rendered, the more likely is its exposition to elicit those common remarks, "of course! of course!" "no one could ever doubt that;" "this is all very

true, but there is nothing *new* brought to light;—nothing that was not familiar to every one,” “there needs no ghost to tell us that.” I am convinced that a verbose, mystical, and partially obscure way of writing on such a subject, is the most likely to catch the attention of the multitude. The generality verify the observation of Tacitus, “*omne ignotum pro mirifico*.” and when any thing is made very plain to them, are apt to fancy that they knew it already; so that the explanations of scientific truths are likely, for a considerable time at least, to be, by most men, underrated the more, the more perfectly they accomplish their object.

A very slow progress, therefore, towards popularity (far slower indeed than has in fact taken place) is the utmost that I expected for such a treatise as I have endeavoured to make the present. I felt myself bound, however, not only as a member of Society, but more especially as a Minister of the Gospel, to use my endeavours towards promoting an object which to me appears highly important, and (what is much more) whose importance was appreciated by very few besides. The cause of Truth universally, and not least, of religious Truth, is benefited by every thing that tends to promote sound reasoning, and facilitate the detection of fallacy. The adversaries of our Faith would, I am convinced, have been on many occasions more satisfactorily answered, and would have had fewer openings for cavil, had a thorough acquaintance with Logic been a more common qualification than it is. In lending my endeavours, therefore whether with greater or less success, towards this object, I trust that I am neither uselessly nor unsuitably employed.

Among the enemies of Christianity in the present day, are included, if I mistake not, a very different description of persons from those who were chiefly to be met with a century, or even half a century ago: what were called “men of wit and pleasure about town;”—ignorant, shallow, flip-pant declaimers, or dull and powerless pretenders to Philosophy. Among the enemies of the Gospel now, are to be found men not only of learning and ingenuity, but of *cultivated argumentative powers*, and not unversed in the principles of Logic. If the advocates of our religion think proper to disregard this help, they will find, on careful inquiry, that *their opponents do not*. And let them not trust too carelessly to the strength of their cause. Truth will, indeed, prevail, where all other points are nearly equal; but it may suffer a temporary discomfiture, if hasty assumptions, unsound arguments, and vague and empty declamation, occupy the place of a train of close, accurate, and luminous reasoning.

It is not, however, solely, or chiefly, for polemical purposes, that the cultivation of the reasoning-faculty is desirable; in persuading, in investigating, in learning, or teaching, in all the multitude of cases in which it is our object to arrive at just conclusions, or to lead others to them, it is

most important. A knowledge of logical rules will not indeed supply the want of other knowledge ; nor was it ever proposed, by any one who really understood this science, to substitute it for any other : but it is no less true that no other can be substituted for this ; that it is valuable in every branch of study ; and that it enables us to use to the greatest advantage the knowledge we possess. It is to be hoped, therefore, that those Academical Bodies, who have been wise enough to retain this science, will, instead of being persuaded to abandon it, give their attention rather to its improvement and more effectual cultivation.

LOGIC.

INTRODUCTION.

§1. Logic, in the most extensive sense in which it has been thought advisable to employ the name, may be considered as the Science, and also as the Art, of Reasoning. It investigates the principles on which argumentation is conducted, and furnishes such rules as may be derived from those principles, for guarding against erroneous deductions. Its most appropriate office, however, is that of instituting an analysis of the process of the mind in Reasoning; and in this point of view it is, as I have said, strictly a *Science*: while, considered in reference to the practical rules above-mentioned, it may be called the *Art* of Reasoning.*

To give even a very condensed account of the lives and works of all the principal writers on Logic,—of the technical terms introduced by each, and the senses in which each employed them,—and of the improvements or corruptions that were from time to time introduced,—in short, to write the History and Antiquities of Logical Science,—would be foreign to my present design. Such a work, if undertaken by a competent writer, would be, though not of a popular character, yet highly interesting and instructive to a limited class of students. But the extensive research which would form one indispensable qualification for such a task, would be only one out of many, even less common, qualifications, without which such a work would be worse than useless. The author should be one thoroughly on his guard against the common error of confounding together, or leading his readers to confound, an intimate acquaintance with many books on a given subject, and a clear insight into the subject itself. With

*See Reprints for the Pandits, No. 1.

ability and industry for investigating a multitude of minute particulars, he should possess the power of rightly estimating each according to its intrinsic importance, and not (as is very commonly done,) according to the degree of *laborious research* it may have cost him, or the *rarity* of the knowledge he may in any case have acquired. And he should be careful, while recording the opinions and expressions of various authors on points of science, to guard both himself and his readers against the mistake of taking any thing on *authority*, that ought to be evinced by scientific reasoning; or of regarding each technical term as having a sort of prescriptive right to retain for ever the meaning attached to it by those who first introduced it. In no subject, in short, is it more important for an author to be free from all tinge of *antiquarian pedantry*.

But if I felt myself as fully competent to the task of writing such a history of Logic as I have alluded to, as I am conscious of not being so, I should still decidedly prefer keeping such a work altogether distinct from a treatise on the science; because the combination of the two in a single volume would render it the more difficult to avoid the blending of them confusedly together; and also because, on such a plan, the distinction could not be so easily preserved between Logic, in the sense in which I am here using that title, and various metaphysical disquisitions to which several writers have given the same name.

§ 3. Passing by* the names of some Byzantine writers of no great importance, we come to the times of the Schoolmen; whose waste of ingenuity, and frivolous subtlety of disputation, have been often made the subject of complaints, into the justice of which it is unnecessary here fully to inquire. It may be sufficient to observe, that their fault did not lie in their diligent study of Logic, and the high value they set upon it, but in their utterly mistaking the true nature and object of the science; and by the attempt to employ it for the purpose of physical discoveries, involving every subject in a mist of words, to the exclusion of sound philosophical investigation. Their errors may serve to account for the strong terms in which Bacon sometimes appears to censure logical pursuits; but that this censure was intended to bear against the extravagant perversions, not the legitimate cultivation, of the science, may be proved from his own observations on the subject, in his *Advancement of Learning*. "Had Bacon lived in the present day, I am inclined to think he would have made his chief complaint against unmethodized inquiry and illogical reasoning. Certainly he would not have complained of *Dialectics* as corrupting Philosophy. To guard now against the evils prevalent in his time, would be to fortify a town against battering-rams, instead of against cannon."†

His moderation, however, was not imitated in other quarters. Even Locke. Locke confounds in one sweeping censure the Aristotelic theory, with the absurd misapplications and perversions of it in later years. His objection to the science, as unserviceable in the *discovery* of truth, (which has of late been often repeated,) while it holds good in reference to many (misnamed) logicians, indicates that, with regard to the

* In this Reprint we pass over the sketch of the ancient history of the science.

† Pol Econ. Lect. ix. p. 237.

true nature of the science itself, he had no clearer notions than they have, of the just limits of logical science, as confined to the theory of Reasoning; and of the distinct character of that operation from the observations and experiments which are essential to the study of Nature.

For instance, in chap. xvii. "on Reason," (which, by the way, he perpetually confounds with *Reasoning*.) he says, in §4, "If syllogisms must be taken for the only proper instrument of reason and means of knowledge, it will follow, that before Aristotle there was not one man that did or could know any thing by reason; and that since the invention of syllogisms there is not one in ten thousand that doth. But God has not been so sparing to men to make them barely two-legged creatures, and left it to Aristotle to make them rational, *i. e.* those few of them that he could get so to examine the grounds of syllogisms, as to see that in above threescore ways that three propositions may be laid together, there are but fourteen wherein one may be sure that the conclusion is right," &c. "God has been more bountiful to mankind than so: He has given them a mind that can reason without being instructed in methods of syllogizing," &c. All this is not at all less absurd than if any one, on being told of the discoveries of modern chemists respecting caloric, and on hearing described the process by which it is conducted through a boiler into the water, which it converts in to a gas of sufficient elasticity to overcome the pressure of the atmosphere, &c., should reply, "If all this were so, it would follow that before the time of these chemists no one ever did or could make any liquor boil."

He presently after inserts an encomium upon Aristotle, in which he is equally unfortunate; he praises him for the "*invention* of syllogisms:" to which he certainly had no more claim than Linnæus to the *creation* of plants and animals; or Harvey, to the praise of having *made the blood circulate*; or Lavoisier, to that of having *formed the atmosphere* we breathe. And the utility of this invention consists, according to him, in the great service done against "those who were not ashamed to deny any thing:" a service which never could have been performed, had syllogisms been an invention or discovery of Aristotle's; for what sophist could ever have consented to *restrict himself to one particular kind of arguments, dictated by his opponent?*

In an ordinary, obscure, and trifling writer, all this confusion of thought and common-place declamation might as well have been left unnoticed; but it is due to the general ability and to the celebrity of such an author as Locke, that errors of this kind should be exposed.

An error apparently different, but substantially the same, pervades the treatises of Watts, and some other modern writers on the subject. Perceiving the inadequacy of the syllogistic theory to the vast purposes to which others had attempted to apply it, he still craved after the attainment of some equally comprehensive and all-powerful system; which he accordingly attempted to construct under the title of *The right use of Reason*,—which was to be a method of invigorating and properly directing all the powers of the mind:—a most magnificent object indeed, but one which not only does not fall under the province of Logic, but cannot be accomplished by any one science or system that can even be conceived to exist. The attempt to comprehend so wide a field, is no extension of

science, but a mere verbal generalization, which leads only to vague and barren declamation.

It is not perhaps much to be wondered at, that in still later times several ingenious writers, forming their notions of the science itself from professed masters in it, such as have just been alluded to, and judging of its value from their failures, should have treated the Aristotelic system with so much reprobation and scorn.

The vague aspirations of some of these writers after a "true"—"rational"—"philosophical system of Logic," which, year after year, and generation after generation, is talked of, and hoped for, and almost promised, but which is acknowledged to have never yet existed,* may recall to one's mind the gorgeous visions which floated before the imagination of the Alchemists, of the philosopher's Stone, and the Universal Medicine; and which made them regard with impatience and with scorn the humble labours of existing Metallurgy and Pharmacy. I believe that in respect of the present subject, the views I am alluding to arise in great measure from men's not perceiving that *Language*,† of some kind or other, is (as will be more fully shown hereafter) an *indispensable instrument* of all Reasoning that properly deserves the name. And hence it is that one may find such writers as I allude to speaking disdain-Tendency to Realism. fully of "rules applicable merely to reasoning in words;"—representing Language as serviceable only "in conveying arguments to another;" and even as "limiting the play of our faculties;" and again as "rendering the mental perception of all abstract truths obscure and confused, in so far as the rude symbol of each idea is taken in the stead of the idea itself;" with other such expressions, emanating from that which is in truth the ancient and still prevalent doctrine of "Realism."

The Syllogistic theory has usually been considered by these Incorrect objectors as professing to furnish a *peculiar method* of reasoning, instead of a method of analyzing that mental process which must *invariably* take place in all correct reasoning; and accordingly they have contrasted the ordinary mode of reasoning with the syllogistic, and have brought forward with an air of triumph

* I have even seen a complaint made, that the introduction of some such perfect system has been prevented by the application of the term Logic to that which is commonly so called. We do not find, however, that the application of the names of Astronomy and Chemistry to the studies formerly so called, prevented the origination of more philosophical systems.

† Hobbes, who has very clearly pointed this out, has unhappily diminished the benefit that might have been derived from much that he has written, by the prejudice he has raised against himself through his exceptionable doctrines in Morals, Politics, and Religion.

the argumentative skill of many who never learned the system; a mistake no less gross than if any one should regard Grammar as a peculiar Language, and should contend against its utility, on the ground that many speak correctly who never studied the principles of Grammar. For Logic, which is, as it were, the Grammar of Reasoning, does not bring forward the regular Syllogism as a *distinct mode of argumentation*, designed to be *substituted* for any other mode;* but as the form to which *all* correct reasoning may be ultimately reduced: and which, consequently, serves the purpose (when we are employing Logic as an *art*) of a test to try the validity of any argument; in the same manner as by chemical analysis we develop and submit to a distinct examination the elements of which any compound body is composed, and are thus enabled to detect any latent sophistication and impurity.

§4. Many misconceptions not very dissimilar to those of Locke, which continue to prevail, more or less, in the present day, will be hereafter noticed, as far as is needful, in appropriate places. In this Introduction it would be unsuitable to advert to them except very briefly, and that, only with a view to caution the learner, unused to these studies, against being disheartened in the outset, by hearing, generally, that objections have been raised against the leading principles of the science, by writers of considerable repute; objections which he will hardly suppose to be, in so great a degree as they really are, either founded on mistake, or unimportant, and turning, in reality, on mere verbal questions.

§5. Complaints have also been made that Logic leaves untouched the greatest difficulties, and those which
 Complaints against Logic. are the sources of the chief errors in reasoning;
viz. the ambiguity or indistinctness of Terms,

* Strange as it may seem, there are some, (I suspect not a few,) who even go a step further, and consider Logic as something *opposed* to right reasoning. I have seen a Review of a work, which the Reviewer characterised as the production of an able *Logician*, and which he *therefore* concluded was likely to have influence with such as will *not* reason! The "not" might naturally have been regarded as a misprint, but that the context shows that such was the reviewer's real meaning.

On seeing such a passage written in the 19th century, who can wonder that in the Middle Ages, Grammar ("Gramarye") was regarded as a kind of magical art?

and the doubts respecting the degrees of evidence in various Propositions: an objection which is not to be removed by any such attempt as that of Watts to lay down "rules for forming clear ideas," and, for "guiding the judgment;" but by replying that no art is to be censured for not teaching more than falls within its province, and indeed more than can be taught by any conceivable art. Such a system of universal knowledge as should instruct us in the full meaning or meanings of every term, and the truth or falsity,—certainty or uncertainty,—of every proposition, thus superseding all other studies, it is most unphilosophical to expect, or even to imagine. And to find fault with Logic for not performing this, is as if one should object to the science of Optics for not giving sight to the blind; or as if (like the man of whom Warburton tells a story in his *Div. Leg.*) one should complain of a reading-glass for being of no service to a person who had never learned to read.

In fact, the difficulties and errors above alluded to are *not* in the process of Reasoning itself, (which alone is the appropriate province of Logic,) but in the *subject-matter* about which it is employed. This process will have been correctly conducted if it have conformed to the logical rules, which preclude the possibility of any error creeping in *between* the principles assumed, and the conclusions we deduce from them. But still that conclusion may be false, if the principles we start from are so; and the known falsity of a conclusion will often serve (as has been above remarked) to correct a mistake made in the outset. In like manner, no arithmetical skill will secure a correct result to a calculation, unless the data are correct from which we calculate; nor does any one on that account undervalue Arithmetic; and yet the objection against Logic rests on no better foundation.

There is in fact a striking analogy in this respect between the two sciences. All Numbers (which are the subject of Arithmetic) must be numbers of *some things*, whether coins, persons, measures, or any thing else; but to introduce into the science any notice of the *things* respecting which calculations are made, would be evidently irrelevant, and would destroy its scientific character: we proceed therefore with arbitrary signs, representing numbers in the abstract. So also does Logic pronounce on the validity of a regularly-constructed argument, equally well, though arbitrary *symbols* may have been substituted for the Terms; and, consequently, without any regard to the things signified by those Terms. And the possibility of doing this (though the employment of such arbitrary symbols has been absurdly objected to, even by writers who understood not only

Arithmetic but Algebra,) is a proof of the strictly scientific character of the system. But many professed logical writers, not attending to the circumstances which have been just mentioned, have wandered into disquisitions on various branches of knowledge; disquisitions which must evidently be as boundless as human knowledge itself, since there is no subject on which Reasoning is not employed, and to which, consequently, Logic may not be *applied*. The error lies in regarding every thing as the *proper province* of Logic to which it is *applicable*.*

§ 6. From what has been said, it will be evident that there is hardly any subject to which it is so difficult to introduce the student in a clear and satisfactory manner, as the one we are now engaged in. In any other branch of knowledge, the reader, if he have any previous acquaintance with the subject, will usually be so far the better prepared for comprehending the exposition of the principles; or if he be entirely a stranger to it, will at least come to the study with a mind unbiassed, and free from prejudices and misconceptions: whereas, in the present case, it cannot but happen, that many who have given some attention to logical pursuits (or what are usually considered as such) will have rather been bewildered by fundamentally erroneous views, than prepared, by the acquisition of just principles, for ulterior progress; and that not a few who pretend not to any acquaintance whatever with the science, will yet have imbibed either such prejudices against it, or such false notions respecting its nature, as cannot but prove obstacles in their study of it.

There is, however, a difficulty which exists more or less in all abstract pursuits; though it is perhaps more felt in this, and often occasions it to be rejected by beginners as dry and tedious; *viz.* the difficulty of perceiving to what ultimate end—to what practical or interesting application—the abstract principles lead, which are first laid before the student; so that he will often have to work his way patiently through the most laborious part of the system, before he can gain any clear idea of the drift and intention of it.

This complaint has often been made by chemical students; who are wearied with descriptions of Oxygen, Hydrogen, and other invisible Elements, before they have any knowledge respecting such bodies as commonly present themselves to the senses. And accordingly some teachers of chemistry obviate in a great degree this objection, by adopting the *analytical* instead of the *synthetical* mode of procedure, when they are first introducing the subject to beginners; *i. e.* instead of synthetically enumerating the elementary substances,—proceeding next to the simplest combinations of these,—and concluding with those more complex substances which are of the most common occurrence, they begin by *analyzing* these last and resolving them step by step into their simple elements; thus at once presenting the subject in an interesting point of view, and clearly setting forth the object of it. The synthetical form of teaching is indeed sufficiently interesting to one who has made considerable pro-

* A similar error is complained of by Aristotle, as having taken place with respect to Rhetoric; of which, indeed, we find specimens in the arguments of several of the interlocutors in *Cic. de Oratore*.

gress in any study ; and being more concise, regular, and systematic, is the form in which our knowledge naturally arranges itself in the mind, and is retained by the memory ; but the analytical is the more interesting, easy, and natural kind of *introduction* ; as being the form in which the first invention or discovery of any kind of system must originally have taken place.

It may be advisable, therefore, to begin by giving a slight sketch, in this form, of the logical system, before we enter regularly upon the details of it. The reader will thus be presented with a kind of imaginary history of the course of inquiry by which that system may be conceived to have occurred to a philosophical mind.

BOOK I.

ANALYTICAL OUTLINE OF THE SCIENCE.

§1.

IN every instance in which we *reason*, in the strict sense of the word, *i. e.* make use of arguments, (I mean *real*, *i. e.* *valid* arguments,) whether for the sake of refuting an adversary, or of conveying instruction, or of satisfying our own minds on any point, whatever may be the subject we are engaged on, a certain process takes place in the mind which is one and the same in all cases, provided it be correctly conducted.

Of course it cannot be supposed that every one is even conscious of this process in his own mind; much less, is competent to explain the principles on which it proceeds. This indeed is, and cannot but be, the case with every other process respecting which any system has been formed; the practice not only may exist independently of the theory, but *must* have preceded the theory. There must have been Language before a system of Grammar could be devised; and musical compositions, previous to the Science of Music. This, by the way, will serve to expose the futility of the popular objection against Logic, that men may reason very well who know nothing of it. The parallel instances adduced, show that such an objection might be applied in many other cases, where its absurdity would be obvious; and that there is no ground for deciding thence, either that the system has no tendency to improve practice, or that even if it had not, it might not still be a dignified and interesting pursuit.

One of the chief impediments to the attainment of a just view of the nature and object of Logic, is the not fully understanding, or not sufficiently keeping in mind, the *SAMENESS* of the reasoning process in all cases. If, as the ordinary mode of speaking would seem to indicate, Mathematical reasoning, and Theological and Metaphysical, and Political, &c., were essentially different from each other, *i. e.* different *kinds of reasoning*, it would follow, that supposing there could be at all any

Reasoning process
similar in all sub-
jects.

such science as we have described Logic, there must be so many different species, or at least different branches, of Logic. And such is perhaps the most prevailing notion. Nor is this much to be wondered at: since it is evident to all, that some men converse and write, in an argumentative way very justly on one subject, and very erroneously on another; in which again others excel, who fail in the former. This error may be at once illustrated and removed, by considering the parallel instance of Arithmetic; in which every one is aware that the process of a calculation is not affected by the nature of the objects, whose numbers are before us: but that (*e. g.*) the multiplication of a number is the very same operation, whether it be a number of men, of miles, or of pounds; though nevertheless persons may perhaps be found who are accurate in the results of their calculations relative to natural philosophy, and incorrect in those of political economy, from their different degrees of skill in the subjects of these two sciences; not surely because there are different arts of Arithmetic applicable to each of these respectively.

Others again, who are aware that the simple system of Logic may be applied to all subjects whatever, are yet disposed to view it as a *peculiar method* of reasoning, and not, as it is, a method of unfolding and analyzing our reasoning: whence many have been led (*e. g.* the author of the Philosophy of Rhetoric) to talk of comparing Syllogistic-reasoning with Moral-reasoning; taking it for granted that it is possible to reason correctly without reasoning logically; which is, in fact, as great a blunder as if any one were to mistake *grammar* for a *peculiar language*, and to suppose it possible to speak correctly without speaking grammatically. They have in short considered Logic as *an art* of reasoning; whereas (so far as it is an art) it is *the art* of reasoning; the logician's object being, not to lay down principles by which one *may* reason, but, by which all *must* reason, even though they are not distinctly aware of them:—to lay down rules, not which *may* be followed with advantage, but which cannot possibly be *departed* from in sound reasoning. These misapprehensions and objections being such as lie on the very threshold of the subject, it would have been hardly possible, without noticing them, to convey any just notion of the nature and design of the logical system.

§ 2.

Origin of
Logic.

Supposing it then to have been perceived that the operation of Reasoning is in all cases the same, the analysis of that operation could not fail to strike the mind as an interesting matter of inquiry. And moreover, since (apparent) arguments which are unsound and inconclusive, are so often employed, either from error or design; and since even those who are not misled by these fallacies, are so often at a loss to detect and expose them in a manner satisfactory to others, or even to themselves; it could not but appear desirable to lay down some general rules of

reasoning applicable to all cases; by which a person might be enabled the more readily and clearly to state the grounds of his own conviction, or of his objection to the arguments of an opponent; instead of arguing at random, without any fixed and acknowledged principles to guide his procedure. Such rules would be analogous to those of Arithmetic, which obviate the tediousness and uncertainty of calculations in the head; wherein, after much labour, different persons might arrive at different results, without any of them being able distinctly to point out the error of the rest. A system of such rules, it is obvious, must, instead of deserving to be called the "art of wrangling," be more justly characterised as the "art of cutting short wrangling," by bringing the parties to issue at once, if not to agreement, and thus saving a waste of ingenuity.

In pursuing the supposed investigation, it will be found that every Conclusion is deduced, in reality, from two other propositions; (thence called *Premises*;) for though one of these may be, and commonly is, suppressed, it must nevertheless be understood as admitted; as may easily be made evident by supposing the *denial* of the suppressed premiss; which will at once invalidate the argument; e. g. if any one, from perceiving that "the world exhibits marks of design," infers that "it must have had an intelligent author," though he may not be aware in his own mind of the existence of any other premiss, he will readily understand, if it be *denied* that "whatever exhibits marks of design must have had an intelligent author," that the affirmative of that proposition is necessary to the validity of the argument.* Or again, if any one on meeting with "an animal

* Some choose to call this proposition not a *premiss* but merely a *condition*. This however is, substantially, (as has been formerly remarked) just what Logicians mean. Whoever has any good ground for believing his inference to be a just one, must believe this condition to exist.

which has horns on the head," infers that "it is a ruminant," he will easily perceive that this would be no argument to any one who should not be aware of the general fact that "all horned animals ruminate."

An argument thus stated regularly and at full length is called a Syllogism; which therefore is evidently not a peculiar *kind of argument*, but only a peculiar *form of expression*, in which every argument may be stated.*

When one of the premises is suppressed, (which for brevity's sake it usually is,) the argument is called an Enthymeme. And it may be worth while to remark, that when the argument is in this state, the objections of an opponent are (or rather appear to be) of two kinds; *viz.* either objections to the *assertion* itself, or objections to its *force* as an argument. *E. G.* In one of the above instances, an atheist may be conceived either denying† that the world *does* exhibit marks of design, or denying‡ that it *follows* from thence that it had an intelligent author. Now it is important to keep in mind that the only difference in the two cases is,

* Some writers, and Locke among others, who profess to despise what they call "syllogistic reasoning," distinctly admit—as Locke does, *e. g.* in ch. xvii. that "*all* right reasoning may be reduced to the form of Syllogism;" (which is admitting the utmost that I conceive any Logician maintains) only, there are, he says, other and better "ways of reasoning:" that is, as he proceeds to explain, people do not always, or usually, *express* their reasoning in a *syllogistic form*; as if any one had ever doubted *that*! Except indeed it be a writer in the Edinburgh Review, (in 1839,) who in deprecating and deriding all attempts to adduce *evidences* of the truth of Christianity, as useless, and even dangerous, for the mass of mankind, (a discovery, by the way, which its first promulgators were not enlightened enough to make) gives as a reason, that "the Gospel has been the stay of countless millions who never framed a *syllogism*." And very probable it is, that Nicodemus for instance, and those who deputed him, when he said "we know that thou art a teacher sent from God; for no man can do these miracles that thou doest except God be with him," though he spoke grammatically and reasoned conclusively, may have never heard of syllogisms, or even of nouns and verbs.

† As the ancient atheists did.

‡ As the modern atheists do.

that in the one, the *expressed* premiss is denied, in the other the *suppressed*; for the force as an argument of either premiss depends on the *other* premiss: if both be admitted, the conclusion legitimately connected with them cannot be denied.

It is evidently immaterial to the argument whether the Conclusion be placed first or last; but it may be proper to remark, that a Reason.

Premiss placed *after* its Conclusion is called the *Reason** of it, and is introduced by one of those conjunctions which are called *causal*; viz. "since," "because," &c, which may indeed be employed to designate a Premiss, whether it came first or last. The *illative* conjunctions, "therefore," &c. designate the Conclusion.

It is a circumstance which often occasions error and perplexity, that both these classes of conjunctions have also another signification, being employed to denote, respectively, *Cause* and *Effect*, as well as *Premiss* and *Conclusion*: e. g. If I say, "this ground is rich, *because* the trees on it are flourishing," or "the trees are flourishing, and *therefore* the soil must be rich," I employ these conjunctions to denote the connexion of *Premiss* and *Conclusion*; for it is plain that the luxuriance of the trees is not the cause of the soil's fertility, but only the cause of *my knowing* it. If again I say, "the trees flourish, *because* the ground is rich," or "the ground is rich, and *therefore* the trees flourish," I am using the very same conjunctions to denote the connexion of *cause* and *effect*; for in this case, the luxuriance of the trees, being evident to the eye, would hardly need to be *proved*, but might need to be *accounted* for.

There are, however, many cases in which the Cause is employed to *prove* the existence of its Effect; especially in arguments relating to *future* events; as e. g. when from favourable weather any one argues that the crops are likely to be abundant; the *cause* and the *reason*, in that case, coincide. And this contributes to their being so often confounded together in other cases.

§ 3.

In an argument, such as the examples above given, it is, as has been said, impossible for any one, who admits both Premises, to avoid admitting the conclusion.

A man may perhaps deny, or doubt and require proof, that all animals that are horned do ruminate. Nay, it is conceivable that he may even not clearly understand what "*rumi-*

* The Major-premiss is often called the *Principle*: and the word *Reason* is then confined to the Minor.

nant” means; but still it will be not the less clear to him, that, *supposing* these Premises granted, the Conclusion must be admitted.

And even if you suppose a case where one or both of the Premises shall be manifestly false and absurd, this will not alter the *conclusiveness* of the Reasoning; though the *conclusion* itself may perhaps be absurd also. For instance, “All the Ape-tribe are originally descended from Reptiles or Insects: Mankind are of the Ape-tribe; therefore Mankind are originally descended from Reptiles or Insects:” here, every one* would perceive the falsity of all three of these propositions. But it is not the less true that the conclusion *follows* from those premises, and that *if* they were true, it would be true also.

But there will be frequently an *apparent* connexion of Premises with a Conclusion which does not in reality follow from them, though to the inattentive or unskilful, the argument may appear to be valid. And there are many other cases in which a doubt may exist whether the argument be valid or not: *i. e.* whether it be possible or not to admit the Premises, and yet deny the Conclusion. It is of the highest importance, therefore, to lay down some regular form to which every valid argument may be reduced, and to devise a rule which shall show the validity of every argument in that form, and consequently the unsoundness of any apparent argument which cannot be reduced to it. *E. G.* If such an argument as this be proposed, “every rational agent is accountable; brutes are not rational agents; therefore they are not accountable:” or again, “all wise legislators suit their laws to the genius of their nation; Solon did this; therefore he was a wise legislator:” there are some, perhaps, who could not perceive any fallacy in such argu-

* Except certain French Naturalists.

ments, especially if enveloped in a cloud of words; and still more, when the conclusion is true, or (which comes to the same point) if they are disposed to believe it: and others might perceive indeed, but might be at a loss to explain, the fallacy. Now these (apparent) arguments exactly correspond, respectively, with the following, the absurdity of the conclusions from which is manifest: "every horse is an animal; sheep are not horses; therefore they are not animals;" and, "all vegetables grow; an animal grows, therefore it is a vegetable." These last examples, I have said, correspond exactly (considered as arguments) with the former; the question respecting the validity of an Argument, being, not whether the conclusion be *true*, but whether it *follows* from the premises adduced.

This mode of exposing a fallacy, by bringing forward a similar one whose conclusion is obviously absurd, is often, and very advantageously resorted to in addressing those who are ignorant of Logical rules; but to lay down such rules, and employ *them* as a test, is evidently a safer and more compendious, as well as a more philosophical mode of proceeding. To attain these, it would plainly be necessary to analyze some clear and valid arguments, and to observe in what their conclusiveness consists.

Let us then examine and analyze such an example as one of those first given: for instance, "Every animal that has horns on the head is ruminant; the Elk has horns on the head; therefore the Elk is ruminant." It will easily be seen that the validity [or "conclusiveness," or "soundness"] of the Argument does not at all depend on our conviction of the truth of either of the Premises; or even on our understanding the meaning of them. For if we substitute for one of the things we are speaking about, some unmeaning Symbol, (such as a letter

of the alphabet,) which may stand for any thing that may be agreed on, the Reasoning remains the same.

For instance, suppose we say, (instead of "animal that has horns on the head,") "Every X is ruminant; the Elk is X; therefore the Elk is ruminant;" the Argument is equally valid.

And again, instead of the word "ruminant," let us put the letter "Y:" then the argument "Every X is Y; the Elk is X; therefore the Elk is Y;" would be a valid argument as before.

And the same would be the case if you were to put "Z" for "the Elk:" for the syllogism "Every X is Y; Z is X; therefore Z is Y," is completely valid, whatever you suppose the Symbols X, Y, and Z to stand for.

Any one may try the experiment by substituting for X, Y, and Z, respectively, any words he pleases; and he will find that, if he does but preserve the same *form* of expression, it will be impossible to admit the truth of the Premises, without admitting also the truth of the Conclusion.

And it is worth observing here, that nothing is so likely to lead to that An argument may be —very common, though seemingly strange—error, understood though its of supposing ourselves to understand distinctly Terms are not. what in reality we understand but very imperfectly, or not at all, as the want of attention to what has been just explained.

A man reads—or even writes—many pages perhaps, of an argumentative work, in which one or more of the terms employed convey nothing distinct to his mind: and yet he is liable to overlook this circumstance, from finding that he clearly understands the *Arguments*. He may be said, in one sense, to *understand what he is reading*; because he can perfectly follow the *train of Reasoning*, itself. But *this*, perhaps, he might equally well do, if he were to substitute for one of the words employed, X, or Z, or any other such unknown Symbol; as in the examples above. But a man will often confound together, the *understanding of the Arguments*, in themselves, and the *understanding of the words employed*, and of the nature of the things those words denote.

It appears then, that valid Reasoning, when regularly expressed, has its validity [or conclusiveness] made evident from

the mere *form of the expression* itself, independently of any regard to the sense of the words.

In examining this form, in such an example as that just given, you will observe that in the first Premiss ("X is Y,") it is assumed universally of the *Class* of things (whatever it may be) which "X" denotes, that "Y" may be affirmed of them: and in the other Premiss, ("Z is X,") that "Z" (whatever it may stand for) is *referred* to that Class, as *comprehended* in it. Now it is evident that whatever is said of the *whole* of a Class, may be said of any thing that is comprehended [or "included," or "contained"] in that Class: so that we are thus authorized to say (in the conclusion) that "Z" is "Y."

Thus also, in the example first given, having assumed universally, of the Class of "Things which exhibit marks of design," that they "had an intelligent maker," and then, in the other Premiss, having referred "The world" to that Class, we conclude that it may be asserted of "The world" that "it had an intelligent maker."

And the process is the same when any thing is *denied* of a whole Class. We are equally authorized to deny the same, of whatever is comprehended under that Class. For instance, if I say, "No liar is deserving of trust; this man is a liar; therefore he is not deserving of trust;" I here deny "deserving of trust," of the whole Class denoted by the word "liar;" and then I refer "this man" to that Class; whence it follows that "deserving of trust" may be denied of him.

This argument also will be as manifestly valid, if (as in the former case) you substitute for the words which have a known meaning, any undetermined Symbols, such as letters of the alphabet. "No X is Y; Z is X; therefore Z is not Y," is as perfect a syllogism as the other with the affirmative conclusion.

And here it is to be observed, that by "*Class*" is meant throughout this treatise, not merely a "*Head*" or "*general description*" to which several things are *actually* referred, but one to which an indefinite number of things *might conceivably* be referred; viz. as many as (in the colloquial phrase) may "*answer to the description.*" *E. G.* One may conceive that, when the first-created man existed alone, some superhuman Beings may have contemplated him not merely as an individual bearing the *proper-name* of *Adam*, but also, by Abstraction, simply, as possessing those attributes which we call collectively "*humanity*" ["*human-nature;*"] and may have applied to him a name,—such as "*Man*"—implying those attributes, [that description] and which would consequently suit equally well any of his descendants.

When then any thing is said to be "*referred to such and such a Class*" this is to be understood either of an *actual*, or what may be called a *potential* Class: *i. e.* the word Class is used whether there actually exist, or not, *several* things to which the description will apply. For it is evident, that, in any case, we refer something to a certain Class *in consequence* of that thing's possessing certain attributes, and not, *vice versa*. And this being kept in mind, there is a convenience in employing the word "*Class*" instead of introducing circumlocution by always speaking of "*description.*"

It will be found, then, on examination, that all valid arguments whatever may be easily reduced to such a form as that of the foregoing syllogisms; and that consequently the principle on which they are constructed is the UNIVERSAL PRINCIPLE of Reasoning. So elliptical, indeed, is the ordinary mode of expression, even of those who are considered as prolix writers,—*i. e.* so much is implied and left to be understood in the course of argument, in comparison of what is actually stated, (most men being impatient, even to excess, of any appearance of unnecessary and tedious formality of statement,) that a single sentence will often be found, though perhaps considered as a single argument, to contain, compressed into a short compass, a chain of several distinct arguments.

But if each of these be fully developed, and the whole of what the author intended to imply be stated expressly, it will be found that all the steps even of the longest and most complex train of reasoning may be reduced into the above form.

It is a mistake (which might appear scarcely worthy of notice, had not so many, even esteemed writers, fallen into it) to imagine that Aristotle and other logicians meant to propose that this prolix form of unfolding argument should universally supersede, in argumentative discourses, the common forms of expression; and that, "to reason logically," means, to state all arguments at full length in the syllogistic form; and Aristotle has even been charged with inconsistency for not doing so. It has been said that "in his *Treatises of Ethics, Politics, &c.* he argues like a rational creature, and never attempts to bring his own system into practice."* As well might a chemist be charged with inconsistency for making use of any of the compound substances that are commonly employed, without previously analyzing and resolving them into their simple elements; as well might it be imagined that, "to speak grammatically," means, to *parse* every sentence we utter. The chemist (to pursue the illustration) keeps by him his tests and his method of analysis, to be employed when any substance is offered to his notice, the composition of which has not been ascertained, or in which adulteration is suspected. Now a fallacy may aptly be compared to some adulterated compound; "it consists of an ingenious mixture of truth and falsehood, so entangled,—so intimately blended,—that the falsehood is (in the chemical phrase) *held in solution*: one drop of sound logic is that test which immediately disunites them, makes the foreign substance visible, and precipitates it to the bottom."†

§ 4.

But to resume the investigation of the principles of Reasoning: the Maxim resulting from the examination of a syllogism in the foregoing form, and of the application of which, every valid argument is in reality an instance, is, "that whatever is predicated (*i. e.* affirmed or denied) universally, of any Class of things, may be predicated in like manner, (*viz.* affirmed or denied) of any thing comprehended in that Class." This is the principle, commonly called the *dictum de omni et nullo*, for the indication of which we are indebted to Aristotle, and which is the key-stone of his whole logical system.

It is remarkable that some, otherwise judicious writers, should have been so carried away by their zeal against that philosopher, as to speak with scorn and ridicule of this principle, on account of its obviousness and

* Lord Kames.

† This excellent illustration is cited from a passage in an anonymous pamphlet, "An Examination of Kett's Logic." The author displays, though in a hasty production, great reach of thought, as well as knowledge of his subject.

simplicity; though they would probably perceive at once, in any other case, that it is the greatest triumph of philosophy to refer many, and seemingly very various, phenomena to one, or a very few simple principles; and that the more simple and evident such a principle is, provided it be truly applicable to all the cases in question, the greater is its value and scientific beauty. If indeed, any principle be regarded as *not* thus applicable, *that* is an objection to it of a different kind. Such an objection against Aristotle's Dictum, no one has ever attempted to *establish* by any kind of proof; but it has often been *taken for granted*; it being (as has been stated) very commonly supposed, without examination, that the syllogism is a *distinct kind of argument*, and that the rules of it accordingly do not apply, nor were intended to apply to all reasoning whatever. Dr. Campbell* endeavours, under this misapprehension, with some ingenuity, and not without an air of plausibility, to show that every syllogism must be futile and worthless, because the Premises virtually assert the Conclusion: little dreaming, of course, that his objections, however specious, lie against the *process of reasoning itself*, universally; and will, therefore, of course, apply to those very arguments which he is himself adducing. He should have been reminded of the story of the woodman, who had mounted a tree, and was so earnestly employed in lopping the boughs, that he unconsciously cut off the bough on which he was standing.

It is still more extraordinary to find other eminent authors† adopting, expressly, the very same objections, and yet distinctly admitting the possibility of reducing every course of argument to a series of syllogisms.

One of these writers brings an objection against the Dictum of Aristotle, which it may be worth while to notice briefly, for the sake of setting in a clearer light the real character and object of that Principle. Its application being, as has been seen, to a regular and conclusive Syllogism, he supposes it intended to prove and *make evident* the conclusiveness of such a syllogism; and remarks how unphilosophical it is to attempt giving a *demonstration of a demonstration*. And certainly the charge would be just, if we could imagine the logician's object to be, to *increase the certainty* of a conclusion which we are supposed to have already arrived at by the clearest possible mode of proof. But it is very strange that such an idea should ever have occurred to one who had even the slightest tincture of Natural philosophy: for it might as well be imagined that a natural philosopher's or a chemist's design is to strengthen the testimony of our senses by *à priori* reasoning, and to convince us that a stone when thrown will fall to the ground, and that gunpowder will explode when fired: because they show that according to their principles those phenomena must take place as they do. But it would be reckoned a mark of the grossest ignorance and stupidity not to be aware that their object is not to *prove* the existence of an individual phenomenon, which our eyes have witnessed, but (as the phrase is) to *account* for it: *i. e.* to show according to what *principle* it takes place;—to refer, in short, the *individual case* to a *general law* of nature. The object of Aristotle's Dictum is precisely analogous; he had, doubtless,

* "Philosophy of Rhetoric,"

† As Dugald Stewart: Philosophy, vol. ii.: and Locke, vol. ii. ch. 17, §4.

no thought of adding to the force of any individual syllogism; his design was to point out the *general principle* on which that process is conducted which takes place in each syllogism. And as the Laws* of nature (as they are called) are in reality merely *generalized facts*, of which all the phenomena coming under them are particular instances; so, the proof drawn from Aristotle's Dictum is not a distinct demonstration brought to confirm another demonstration, but is merely a generalized and abstract statement of *all* demonstration whatever; and is, therefore, in fact, *the very demonstration* which (*mutatis mutandis*) accommodated to the various subject-matters, is actually employed in each particular case.

In order to trace more distinctly the different steps of the abstracting process, by which any particular argument may be brought into the most general form, we may first take a syllogism (*i. e.* an argument stated accurately and at full length), such as the example formerly given, "whatever exhibits marks of design, &c.," and then somewhat generalize the expression, by substituting (as in algebra) arbitrary unmeaning symbols for the significant terms that were originally used; the syllogism will then stand thus; "every B is A; C is B; therefore C is A." The reasoning, when thus stated, is no less evidently valid, whatever terms, A, B, and C, respectively, may be supposed to stand for. Such terms may indeed be inserted as to make all or some of the assertions *false*; but it will still be no less impossible for any one who *admits* the truth of the *premises*, in an argument thus constructed, to deny the conclusion; and this it is that constitutes the conclusiveness of an argument.

Viewing then the syllogism thus expressed, it appears clearly, that "A stands for *any thing whatever* that is affirmed of a certain entire Class," (*viz.* of every B,) "which class comprehends or contains in it *something else*," *viz.* C, (of which B is, in the second premiss, affirmed); and that, consequently, the first term (A) is, in the conclusion, predicated of the third C.

Now to assert the validity of this process, now before us, is to *state the very Dictum* we are treating of with hardly even a verbal alteration: *viz.* :

1. Any thing whatever, predicated of a whole class,
2. Under which class something else is contained,
3. May be predicated of that which is so contained.

The three members into which the Maxim is here distributed, correspond to the three propositions of the Syllogism to which they are intended respectively to apply. †

The advantage of substituting for the terms in a regular syllogism, arbitrary unmeaning symbols, such as letters of the alphabet, is much the same as in Geometry: the Reasoning itself is then

Utility of non-significant symbols.

* Appendix, No. 1, art. *Law*.

† See Book IV. Ch. III. § 1.

considered, by itself, clearly, and without any risk of our being misled by the truth or falsity of the conclusion; which is, in fact, accidental and variable; the essential point being, as far as the *argument* is concerned, the *connection between* the premises and the conclusion. We are thus enabled to embrace the general principle of all reasoning, and to perceive its applicability to an indefinite number of individual cases. That Aristotle, therefore, should have been accused of making use of these symbols for the purpose of *darkening* his demonstrations, and that too by persons not unacquainted with Geometry and Algebra, is truly astonishing. If a geometer, instead of designating the four angles of a square by four letters, were to call them *north, south, east, and west*, he would not render the demonstration of a theorem the easier; and the learner would be much more likely to be perplexed in the application of it.

It belongs then exclusively to a Syllogism, properly so called (*i. e.* a valid argument, so stated that its conclusiveness is evident from the mere *form* of the expression), that if letters, or any other unmeaning symbols, be substituted for the several terms, the validity of the argument shall still be evident. Whenever this is not the case, the supposed argument is either unsound and sophistical, or else may be reduced (without any alteration of its meaning) into the syllogistic form; in which form, the test just mentioned may be applied to it.

Some persons have remarked of the "Dictum" (meaning it is a disparagement) that it is merely a somewhat circuitous True character of the Dictum. *explanation of what is meant by a Class.* It is, in truth, just such an explanation of this as is needful to the student, and which must be kept before his mind in reasoning. For we should recollect that not only every Class [the Sign of which is a "Common-term"] comprehends under it an indefinite number of individuals,—and often of other Classes,—differing in many respects from each other, but also most of those individuals and classes may be referred, each, to an indefinite number of classes according as we *choose to abstract* this point or that, from each.

Now to *remind* one on each occasion, that so and so is referable to such and such a Class, and that the class which happens to be before us comprehends such and such things,—this is *precisely all that is ever accomplished by Reasoning.*

For one may plainly perceive, on looking at any of the examples above, that when we assert *both* the Premises taken in conjunction, we have,

virtually, implied the Conclusion. Else, indeed, it would *not* be impossible (as it is) for any one to deny the Conclusion, who admits both Premises.*

What is called an unsound or fallacious argument (*i. e.* an *apparent* argument, which is, in reality, none) cannot, of course, be reduced into this form; but when stated in the form most nearly approaching to this that is possible, its fallaciousness becomes more evident, from its non-conformity to the foregoing rule: *e. g.* "whoever is capable of deliberate crime is responsible; an infant is not capable of deliberate crime; therefore, an infant is not responsible," (see §3): here the term "responsible" is affirmed universally of "those capable of deliberate crime;" it might, therefore, according to Aristotle's Dictum, have been affirmed of any thing contained under that class; but, in the instance before us, *nothing* is mentioned as contained under that class; only, the term "infant" is *excluded* from that class; and though what is affirmed of a whole class may be affirmed of any thing that *is* contained under it, there is no ground for supposing that it may be *denied* of whatever is *not* so contained; for it is evidently possible that it may be applicable to a whole class and to something else besides. To say, *e. g.* that all trees are vegetables, does not imply that *nothing else* is a vegetable; nor, when it is said, that "all who are capable of deliberate crime are responsible," does this imply, that "no others are responsible;" for though this may be very *true*, it has not been asserted in the premiss before us; and in the analysis of an argument, we are to discard all consideration of what *might* be asserted; contemplating only what *actually* is laid down in the premisses. It is evident, therefore, that such an apparent argument as the above does not comply with the rule laid down, nor can be so stated as to comply with it; and is consequently invalid.

Again, in this instance, "food is necessary to life; corn is food; therefore, corn is necessary to life:" the term "necessary to life" is affirmed of food, but *not universally*; for it is not said of *every kind of food*: the meaning of the assertion being manifestly that "*some* food is necessary to life;" so that, expressed in symbols, the apparent argument might stand thus; "Some X is Y; Z is X; therefore Z is Y." Here again, therefore, the rule has not been complied with, since that which has been predicated, [affirmed or denied] not of the *whole*, but of a *part* only of a certain class, cannot be, on that ground, predicated of *whatever* is contained under that class.

There is an argument against miracles by the well-known Mr. Hume, which has perplexed many persons, and which exactly corresponds to the above. It may be stated thus: "Testimony is a kind of evidence more

* Hence, some have considered it as a disparagement to a Syllogism (which they imagine to be *one kind* of Argument) that you can gain no *new truth* from it; the Conclusions it establishes being in fact known already, by every one who has admitted the Premises.

Since, however, a Syllogism is not a certain distinct kind of argument, but *any* argument whatever, stated in a regular form, the complaint, such as it is, lies against Reasoning altogether. In B. iv. ch. 2, this point is more fully explained.

likely to be false, than a miracle to be true;" (or, as it may be expressed in other words, we have more reason to expect that a witness should lie, than that a miracle should occur) "the evidence on which the Christian miracles are believed, is testimony; therefore the evidence on which the Christian miracles are believed is more likely to be false than a miracle to be true."

Here it is evident that what is spoken of in the first of these Premises, is, "*some* testimony;" not "*all* testimony," [or *any whatever*,] and by "*a* witness" we understand "*some* witness," not, "*every* witness;" so that this apparent argument has exactly the same fault as the one above.*

§ 5.

The fallacy in these last cases is, what is usually described in logical language as consisting in the "non-distribution of the middle term;" *i. e.* its not being employed to denote *all* the objects to which it is applicable. In order to understand this phrase, it is necessary to observe that a *Proposition* being an expression in which one thing is said *i. e.* affirmed or denied of another, (*e. g.* "A is B,") both that of which something is said, and that which is said of it (*i. e.* both A and B), are called "*terms*;" from their being (in their nature) the extremes or *boundaries* of the Proposition: and there are, of course, two, and but two, terms in a proposition (though it may so happen that either of them may consist either of one *word*, or of several); and a term is said to be "*distributed*," when it is taken universally, so as to stand for every thing it is capable of being applied to; and consequently "*undistributed*," when it stands for a portion only of the things signified by it: thus, "*all* food," or *every* kind of food, are expressions which imply the distribution of the term "food;" "*some* food" would imply its non-distribution. And it is also to be observed that the term of which, in one premiss, something is affirmed or denied, and to which, in the other premiss, something else is referred as contained in it, is called the "*middle*" term in the syllogism, as standing *between* the other two (*viz.* the two terms of the conclusion), and being the medium of proof. Now it is plain, that if in each premiss a *part* only of this middle-term is employed, *i. e.* if it be not at all distributed, no conclusion can be drawn. Hence, if, in the example formerly adduced, it had been merely stated that "*something*" (not "*whatever*," or "*everything*") "*which* exhibits marks of design is the work of an intelligent author," it would not have followed, from the world's exhibiting marks of design, that that is the work of an intelligent author.

It is to be observed, also, that the words "*all*" and "*every*," which mark the distribution of a term, and "*some*," which marks its non-distribution, are not always expressed: they are frequently understood, and left to be supplied by the context; *e. g.* "food is necessary;" *viz.* "*some* food;" "man is mortal;" *viz.* "*every* man."

Propositions thus expressed are called by logicians "*indefinite*," because it is left undetermined by the form of the expression whether the "*subject*" (the term of which something is affirmed or denied being called the "*subject*" of the

Indefinite Propositions.

* See Appendix II. Example No. 26.

proposition, and that which is said of it, the "predicate") be distributed or not. Nevertheless it is plain that in every proposition the Subject either is, or is not, meant to be distributed; though it be not declared whether it is or not. Consequently, every proposition, whether expressed indefinitely or not, must be understood as either "universal" or "particular; those being called Universal in which the predicate is said of the whole of the subject (or, in other words, where the subject is distributed); and those, Particular, in which it is said only of a part of the subject: *e. g.* "All men are sinful," is universal; "some men are sinful," particular. And this division of propositions is, in logical language, said to be according to their "*quantity*."

But the distribution or non-distribution of the *predicate* is entirely independent of the *quantity* of the proposition; nor are the signs "all" and "some" ever affixed to the predicate; because its distribution depends upon, and is indicated by, the "*quality*" of the proposition; *i. e.* its being *affirmative* or *negative*; it being a universal rule, that the predicate of a negative proposition is distributed, and of an affirmative, undistributed. The reason of this may easily be understood, by considering that a term which stands for a whole Class may be applied to (*i. e.* affirmed of) any thing that is comprehended under that class, though the term of which it is thus affirmed may be of much narrower extent than that other, and may, therefore, be far from coinciding with the *whole* of it. Thus it may be said with truth, that "the Negroes are uncivilized," though the term uncivilized be of much wider extent than "Negroes," comprehending, besides them, Hottentots, &c.; so that it would not be allowable to assert, that "*all* who are uncivilized are Negroes;" it is evident, therefore, that it is a *part* only of the term "uncivilized" that has been affirmed of "Negroes;" and the same reasoning applies to every affirmative proposition; for though it may so happen that the subject and predicate coincide; *i. e.* are of equal extent, as, *e. g.* "all men are rational animals;" "all equilateral triangles are equiangular;" (it being equally true, that "all rational animals are men," and that "all equiangular triangles are equilateral;") yet this is not *implied by the form of the expression*; since it would be no less true, that "all men are rational animals," even if there were other rational animals besides Man.

It is plain, therefore, that if *any part* of the predicate is applicable to the subject, it may be affirmed, and, of course, cannot be denied, of that subject; and consequently, when the predicate is *denied* of the subject, this implies that *no part* of that predicate is applicable to the subject; *i. e.* that the *whole* of the predicate is denied of the subject; for to say, *e. g.* that "no beasts of prey ruminant," implies that beasts of prey are excluded from the *whole class* of ruminant animals, and consequently that "no ruminant animals are beasts of prey." And hence results the above-mentioned rule, that the distribution of the predicate is implied in negative propositions, and its non-distribution, in affirmatives.

It is to be remembered, then, that it is not sufficient for the middle Distribution of middle terms. term to *occur* in a Universal-proposition; since if that proposition be an affirmative, and the middle-term be the *predicate* of it, it will not be distributed; *e. g.* if in

the example formerly given, it had been merely asserted, that "all the works of an intelligent author show marks of design," and that "the universe shows marks of design," nothing could have been proved; since, though both these propositions are universal, the middle-term is made the predicate in each, and both are affirmative; and accordingly, the rule of Aristotle is not here complied with, since the term "work of an intelligent author," which is to be proved applicable to "the universe," would not have been affirmed of the middle-term ("what shows marks of design") under which "universe" is contained; but the middle-term, on the contrary, would have been affirmed of it.

If, however, one of the premises be negative, the middle-term may then be made the predicate of that, and will thus, according to the above remark, be distributed *e. g.* "no ruminant animals are predacious; the lion is predacious; therefore the lion is not ruminant:" this is a valid syllogism; and the middle-term (predacious) is distributed by being made the predicate of a negative proposition. The form, indeed, of the syllogism is not that prescribed by the Dictum, but it may easily be reduced to that form, by stating the first proposition thus: "no predacious animals are ruminant;" which is manifestly implied (as was above remarked) in the assertion that "no ruminant animals are predacious." The syllogism will thus appear in the form to which the Dictum applies.

It is not every argument, indeed, that can be reduced to this form by The Dictum universally applicable. so short and simple an alteration as in the case before us: a longer and more complex process will often be required; and rules will hereafter be laid down to facilitate this process in certain cases: but there is no sound argument but what *can* be reduced into this form, without at all departing from the real meaning and drift of it; and the form will be found (though more prolix than is needed for ordinary use) the most perspicuous in which an argument can be exhibited.

All Reasoning whatever, then, rests on the one simple Principle laid down by Aristotle, that "what is predicated, either affirmatively or negatively, of a term distributed, may be predicated in like manner (*i. e.* affirmatively or negatively) of any thing contained under that term." So that when our object is to prove any proposition, *i. e.* to show that one term may rightly be affirmed or denied of another, the process which really takes place in our minds is, that we *refer* that term (of which the other is to be thus predicated) to some class (*i. e.* middle term) of which that other may be affirmed, or denied, as the case may be.

Whatever the subject-matter of an argument may be, the Reasoning itself, considered by itself, is in every case the same process; and if the writers against Logic had kept this in mind, they would have been cautious

of expressing their contempt of what they call "syllogistic reasoning," which is in truth *all* reasoning; and instead of ridiculing Aristotle's Principle for its obviousness and simplicity, would have perceived that these are, in fact, its highest praise: the easiest, shortest, and most evident theory, provided it answer the purpose of explanation, being ever the best.

§ 6.

If we conceive an inquirer to have reached, in his investigation of the theory of Reasoning, the point to which we have now arrived, a question which would be likely next to engage his attention, is that of *Predication*; *i. e.* since in reasoning we are to find a middle-term which may be predicated affirmatively of the Subject in question, we are led to inquire what terms may be affirmed, and what denied, of what others.

It is evident that a proper-name, or any other term which Common & singular terms. denotes but a single individual, as "Cæsar,"

"the Thames," "the Conqueror of Pompey," "this river" (hence called in Logic a "Singular-term") cannot be affirmed of any thing besides that individual, and may therefore be denied of any thing else; we may say, "this river is the Thames," or "Cæsar was the conqueror of Pompey;" but we cannot say of any thing else that it is the Thames, &c.

On the other hand, those terms which are called "*Common*," as denoting any one individual of a whole class, as "river," "conqueror," may of course be affirmed of any, or all that belong to that class: [of any thing answering to a certain *description*] as, "the Thames is a river;" "the Rhine and the Danube are rivers."

Common-terms, therefore, are called "predicables" (*viz.* *affirmatively-predicable*), from their capability of being affirmed of others: a Singular-term, on the contrary, may be the subject of a proposition, but never the Predicate, unless it be of a negative proposition; (as *e. g.* the first-born of

Isaac was not Jacob;) or, unless the Subject and Predicate be only two expressions for the same individual object; as in some of the above instances.

The process by which the mind arrives at the notions expressed by these Abstraction and "common" (or in popular language, "general") generalization. terms, is properly called "Generalization;" though it is usually (and truly) said to be the business of *abstraction*: for Generalization is one of the purposes to which Abstraction is applied. When we *draw off*, and *contemplate separately* any part of an object presented to the mind, disregarding the rest of it, we are said to *abstract* that part. Thus, a person might, when a rose was before his eyes or mind, make the scent a distinct object of attention, laying aside all thought of the colour, form, &c.; and thus, even though it were the *only* rose he had ever met with, he would be employing the faculty of Abstraction; but if, in contemplating *several* objects, and finding that they agree in certain points, we abstract the circumstances of agreement, disregarding the differences, and give to all and each of these objects a name applicable to them in respect of this agreement, *i. e.* a common name, as "rose,"—or again, if we give a name to some attribute wherein they agree, as "fragrance" or "redness," we are then said to *generalize*. Abstraction, therefore, does not necessarily imply Generalization, though Generalization implies Abstraction.

Much needless difficulty has been raised respecting the results of this process; many having contended, and perhaps more having taken for granted, that there must be some really-existing *thing*, corresponding to each of those "general" [or "common"] terms, and of which such term is the name, standing for and representing it: *e. g.* that as there is a really existing Being corresponding to the proper name "*Ætna*," and signified by it, so, the common-term, "mountain," must also have some one really existing thing corresponding to it; and of course *distinct* from each individual mountain (since the term is not Singular but common), yet existing *in* each, since the term is applicable to each of them. "When many different men," it is said, "are at the same time thinking or speaking about a 'mountain,' *i. e.* not any particular one, but 'a mountain, generally,' their minds must be all employed on *something*; which must also be *one* thing, and not several, and yet cannot be any *one* individual." And hence a vast train of mystical disquisitions about Ideas, &c. has arisen, which are at best nugatory, and tend to obscure our view of the process which actually takes place in the mind.

The fact is, the notion expressed by a Common-term is merely an inadequate [incomplete] notion of an Individual; Notion expressed by common terms. and from the very circumstance of its inadequacy, it will apply equally well to any one of an indefinite number of individuals of the same description;—to any one, in short, possessing the attribute or attributes that have been abstracted, and which are designated by that Common-term. *E. G.* If I omit the mention and the consideration of every circumstance which distinguishes *Ætna* from any other mountain, I then form a notion (expressed by the Common-term "Mountain") which *inadequately* designates *Ætna* (*i. e.*

which does not imply any of its peculiarities, nor its numerical singleness), and is equally applicable to any one of several other individuals.

Generalization, it is plain, may be indefinitely extended by a further abstraction applied to common-terms: *e. g.* as by abstraction from the term Socrates we obtain the common-term "Philosopher;" so, from "philosopher," by a similar process, we arrive at the more general-term "man;" from "man" we advance to "animal," &c. And so also you may advance from any "ten" objects before you, (for instance, the fingers; from which doubtless arose the custom of reckoning by tens) to the general-term,—the number "ten;" and thence again, to the more general-term, "number;" and ultimately to the term "quantity."*

We are thus enabled, not only to separate, and consider singly one part of an object presented to the mind, but also to fix arbitrarily upon whatever part we please, according to different abstractions from the same subject, as may suit the purpose we happen to have in view.

E. G. Any individual person to whom we may direct our attention, may be considered either in a political point of view, and accordingly referred to the class of Merchant, Farmer, Lawyer, &c. as the case may be; or physiologically, as Negro, or White-man; or theologically, as Pagan, Mahometan, Christian, &c.; or geographically, as European, American, &c. And so, in respect of any thing else that may be the subject of our reasoning; we arbitrarily fix upon and abstract that point which is essential to the purpose in hand; so that the same object may be referred to various different classes, according to the occasion. Not, of course, that we are allowed to refer any thing to a class to which it does *not* really belong; which would be pretending to abstract from it something that was *no* part of it; but that we arbitrarily fix on *any* part of it which we choose to abstract from the rest.

It is important to notice this, because men are often disposed to consider each object as *really* and properly belonging to some *one* class alone;† from their having been accustomed, in the course of their own pursuits, to consider, in one point of view only, things which may with equal propriety be considered in other points of view also: *i. e.* referred to various Classes, (or predicates.) And this is that which chiefly constitutes what

Different modes of classification. is called narrowness-of-mind. *E. G.* A mere botanist might be astonished at hearing such plants as Clover and Lucerne included, in the language of a

* The employment of this faculty at pleasure has been regarded, and perhaps with good reason, as the characteristic distinction of the human mind from that of the Brutes. Accordingly, even the most intelligent Brutes seem incapable of forming any distinct notion of *number*; to do which evidently depends on Abstraction. For, in order to *count* any objects, you must withdraw your thoughts from all *differences* between them, and regard them simply as *units*. And accordingly, the Savage Tribes (who are less removed than we are from the Brutes) are remarked for a great deficiency in their notions of *number*. Few of them can count beyond ten, or twenty; and some of the rudest Savages have no words to express any numbers beyond five. See Dr. Taylor's "Natural-history of Society."

† See the subjoined Dissertation, Book IV. Chap. V.

farmer, under the term "grasses," which he has been accustomed to limit to a tribe of plants widely different in all botanical characteristics; and the mere farmer might be no less surprised to find the troublesome "weed," (as he has been accustomed to call it,) known by the name of Couch-grass, and which he has been used to class with nettles and thistles, to which it has no *botanical* affinity, ranked by the botanist as a species of Wheat, (*Triticum Repens*.) And yet neither of these classifications is in itself erroneous or irrational; though it would be absurd, in a botanical treatise, to class plants according to their agricultural use; or, in an agricultural treatise, according to the structure of their flowers. So also, a Diamond would be classed by a jeweller along with the ruby, emerald, &c., as a *precious stone*: while the chemist classes it, along with plumbago and coal, as one of the forms of *carbon*.

The utility of these considerations with a view to the present subject, will be readily estimated, by recurring to the account which has been already given of the process of Reasoning; the analysis of which shows that it consists in referring the term we are speaking of to some class, *viz.* a middle term; which term again is referred to, or excluded from (as the case may be) another class, *viz.* the term which we wish to affirm or deny of the Subject of the Conclusion. So that the quality of our reasoning in any case must depend on our being able correctly, clearly and promptly, to *abstract* from the Subject in question that which may furnish a Middle-term suitable to the occasion.

The imperfect and irregular sketch which has here been attempted, of logical system, may suffice (even though some parts of it should not be at once fully understood by those who are entirely strangers to the study) to point out the general drift and purpose of the science, and to render the details of it both more interesting and more intelligible. The Analytical form, which has here been adopted, is, generally speaking, better suited for *introducing* any science in the plainest and most interesting form; though the Synthetical, which will henceforth be employed, is the more regular, and the more compendious form for storing it up in the memory.

It is to be observed, however, that technical terms and rules will be rather an encumbrance than a help, unless we take care not only to understand them thoroughly, but also to learn them so perfectly that they may be as readily and as correctly employed as the names of the most familiar objects around us.

But if any one will take the trouble to do this *once for all*, he will find that in the end much trouble will have been saved. For, the explanations given of such technical-terms and general rules, when thoroughly

learnt, once, will save the necessity of going through nearly the *same* explanation, *over and over again* on each separate occasion.

In short, the advantage of technical-terms is just like what we derive from the use of *any other* Common-terms. When, for instance, we have once accurately learnt the definition of a "Circle," or have had fully described to us what sort of creature an "Elephant" is, to say "I drew a Circle," or, "I saw an Elephant," would be sufficiently intelligible, without any need of giving the description or definition at full length, over and over again, on every separate occasion.

BOOK II.

SYNTHETICAL COMPENDIUM.

CHAP. I.—*Of the Operations of the Mind and of Terms.*

§ 1.

THERE are three operations [or states] of the mind which
Operations of are immediately concerned in Argument; which
the Mind. are called by logical writers—1st. Simple-ap-
prehension; 2d. Judgment; 3d. Discourse or Reasoning.

1st. Simple-apprehension they define to be that act or
Simple-appre- condition of the mind in which it receives a
hension. notion of any object; and which is analogous
to the perception of the senses.

2d. Judgment is the comparing together in the mind two
Judgment. of the notions [or ideas] which are the objects
of Apprehension, and pronouncing that they
agree or *disagree* with each other: [or that one of them *be-
long*s or does not belong to the other.] Judgment, there-
fore, is either *affirmative* or *negative*.

3d. Reasoning [or “discourse”] is the act of proceeding
Discourse. from certain Judgments to another *founded* upon
them, [or the result of them.]

§ 2.

Language affords the *signs* by which these operations of the mind are not only expressed, and communicated to others, but even, for the most part, carried on by ourselves. The notion obtained in an act of *apprehension*, is called, when expressed in language, a *term*; an act of *judgment* is expressed by a *proposition*; an act of *reasoning*, by an *argument*; (which, when *regularly* expressed, is a syllogism;) as *e. g.*

“Every dispensation of Providence is beneficial;

Afflictions are dispensations of Providence,

Therefore they are beneficial :

is a Syllogism; the act of reasoning being indicated by the word “*therefore*.” It consists of three *propositions*, each of which has (necessarily) two *terms*, as “beneficial,” “dispensations of Providence,” &c.

And whereas, in reasoning, *terms* are liable to be *indistinct*, (*i. e.* without any clear, determinate meaning,) *propositions* to be *false*, and *arguments inconclusive*, Logic undertakes directly and completely to guard against *this last defect*, and, incidentally, and in a certain degree, against the others, as far as can be done by the *proper use of language*. It is therefore, (when regarded as an *art*) “the Art of employing language properly for the purpose of Reasoning; and of distinguishing what is properly and truly an Argument from spurious imitations of it.” The importance of such a study no one can rightly estimate who has not long and attentively considered how much our thoughts are influenced by expressions, and how much error, perplexity, and labour are occasioned by a faulty use of language; and many who are not unaware of *that*, have yet failed to observe that “*signs*” (such as Language supplies) are an indispensable instrument of all Reasoning, strictly so called.

In reference however to the above-mentioned defects, two important distinctions are to be observed. 1st, It is to be remembered that that which is, *really*, a Term, may be *indistinctly* apprehended by the person employing it, or by his hearer; and so also, a Proposition which is *false*, is not the less a *real Proposition*: but, on the other hand, any expression or statement which does not really *prove* any thing, is *not, really*, an Argument at all, though it may be brought forward and passed off as such.

2dly, It is to be remembered that (as it is evident from what has been

formerly said) no rules can be devised that will *equally* guard against *all three* of the above-mentioned defects.

To arrive at a distinct apprehension of every thing that may be expressed by any Term whatever, and again, to ascertain the truth or falsity of every conceivable Proposition, is manifestly beyond the reach of any system of rules. But on the other hand, it *is* possible to exhibit any pretended Argument whatever in such a form as to be able to *pronounce decisively* on its validity or its fallaciousness.

So that the *last* of the three defects alluded to (though not, the two former) may be *directly* and *completely* obviated by the application of suitable rules. But the other two defects can be guarded against (as will presently be shown) only *indirectly*, and to a certain degree.

In other words, rules may be framed that will enable us to decide, what is, or is not, *really* a "Term,"—really, a "Proposition"—or really, an "Argument;" and to do this, is to guard *completely* against the defect of *inconclusiveness*; since nothing that is inconclusive, is, really, an "Argument;" though that may be *really* a "Term" of which you do not *distinctly* apprehend the meaning; and that which is *really* a "Proposition," may be a *false* Proposition.

A Syllogism being, as aforesaid, resolvable into three Propositions, and each Proposition containing two Terms; of these terms, that which is spoken of is called the *subject*; that which is said of it, the *predicate*; and these two are called the *terms* [or extremes] because, logically, the Subject is placed *first*, and the Predicate *last*;* and, in the middle, the Copula, which indicates the act of Judgment, as by it the Predicate is affirmed or denied of the Subject. The Copula must be either *is* or *is not*; which expressions indicate simply that you affirm or deny the Predicate, of the Subject. The substantive-verb is the only *verb* recognised by Logic; inasmuch as all others are compound; being resolvable, by means of the verb, "to be," and a participle or adjective: *e. g.* "the Romans conquered:" the word *conquered* is both copula and predicate, being equivalent to "*were* (Cop.) *victorious*" (Pred.)

It is proper to observe, that the Copula, as such, has no relation to

* In Greek and in Latin, very often, and, not unfrequently, in English, the predicate is, actually, put first: as "great is Diana of the Ephesians."

time; but expresses merely the agreement or disagreement of two given terms: hence, if any other *tense* of the substantive-verb besides the present, is used, it is either understood as the same in sense, (the difference of tense being regarded as a matter of grammatical propriety only;) or else, if the circumstance of *time* really do *modify the sense* of the whole proposition, so as to make the use of that tense an essential, then, this circumstance is to be regarded as a part of one of the terms: "at that time," or some such expression, being understood: as "this man *was* honest;" *i. e.* "he is one formerly-honest." In such cases, an emphasis, accompanied with a peculiar tone, is usually laid on the substantive-verb.

Sometimes the substantive-verb is both Copula and Predicate; *i. e.* where *existence* only is predicated: *e. g.* *Deus est*, "there is a God." "One of Jacob's sons is not." And observe, that the Copula, merely as such, does not imply *real existence*: *e. g.* "a faultless man is a Being feigned by the Stoics, and which one must not expect to meet with."

§ 3.

It is evident that a Term may consist either of one Word or of several; and that it is not every word that is *categorematic i. e.* capable of being employed by itself as a Term. Adverbs, Prepositions, &c. and also Nouns in any other case besides the nominative, are *syncategorematic, i. e.* can only form part of a term. A nominative Noun may be by itself a term. A Verb (all except the substantive-verb used as the copula) is a *Mixed. mixed* word, being resolvable into the Copula and Predicate, to which it is equivalent, and, indeed, is often so resolved in the mere rendering out of one language into another; as "*ipse adest*," "he is present."

It is to be observed, however, that under "verb," we do not include the Infinitive, which is properly a Noun-substantive, nor the Participle, which is a Noun-adjective. They are *verbals*; being related to their respective verbs in respect of *the things they signify*: but not *verbs*, inasmuch as they differ entirely in their *mode of signification*. It is worth observing, that an Infinitive (though it often comes last in the sentence) is *never the predicate*, except when another Infinitive is the subject: *e. g.*

	subj.	pred.	
"I hope to succeed:"	i. e.	"to succeed is what I hope."	"Not to advance is to fall back."

It is to be observed, also, that in English there are two infinitives, one in "*ing*," the same in sound and spelling as the Participle-present; from which, however, it should be carefully distinguished; *e. g.* "rising early is healthful," and "it is healthful to rise early," are equivalent.

Grammarians have produced much needless perplexity by speaking of the *participle* in "*ing*," being *employed* so and so; when it is manifest that that very employment of the word constitutes it, to all intents and purposes, an *infinitive* and not a *participle*.

The advantage of the infinitive in *ing*, is, that it may be used either in the nominative or in any oblique case; not (as some suppose) that it necessarily implies a *habit*; *e. g.* "Seeing is believing;" "there is glory in dying for one's country;" "a *habit* of observing," &c.

If I say "he is riding," and again "riding is pleasant," in the former sentence "riding" is an Adjective, and is the Predicate; in the latter it is a Substantive and is the Subject; the sentence being equivalent to "it is pleasant to ride."

In this, and in many other cases, the English word IT serves as a *representative* of the Subject when that is put last: *e. g.*

pred. subj.
 "It is to be hoped that we shall succeed."

Of Simple-terms, then, (which are what the first part of Logic treats of) there are many divisions;* of which, however, one will be sufficient for the present purpose; *viz.* into *singular* and *common*: because, though any term whatever may be a *subject*, none but a *common* term can be affirmatively *predicated* of several others. A Singular-term stands for *one individual*, as "Cæsar," "the Thames:" these, it is plain, cannot be said [predicated] *affirmatively*, of any thing but those individuals respectively. A Common-term is one that may stand for any of an indefinite number of individuals, which are called its *significates*: *i. e.* can be *applied* to any of them, as comprehending them in its *single signification*; as "man," "river," "great."

CHAP. II.—Of Propositions.

§ 1.

THE second part of Logic treats of the *Proposition*; which is, "*Judgment expressed in words.*"

A Proposition is defined logically "*a Sentence indicative,*" [or "*asserting*"] *i. e.* which "*affirms or denies.*"† It is this that distinguishes a *Proposition* from a *Question*, a *Command*, &c.

Propositions considered merely as *Sentences*, are distinguished into "*Categorical*" and "*Hypothetical.*"

* See Reprints, No. III. p. 19.

† "*Sentence*" being, in logical language, the *Genus*, and "*indicative*" the "*Differentia*," [or distinguishing-quality.] See Ch. V. §6.

The Categorical asserts simply that the Predicate does, or does not, apply to the subject: as "The world had an intelligent maker." "Man is not capable of raising himself, unassisted, from the savage to the civilized state." The Hypothetical [called by some writers, "Compound"] makes its assertion under a *Condition*, or with an *Alternative*; as "If the world is not the work of chance, it must have had an intelligent maker." "Either mankind are capable of rising into civilization unassisted, or the first beginning of civilization must have come from above."

The former of these two last examples is of that kind called "Conditional-propositions;" the "*condition*" being denoted by "if," or some such word. The latter example is of the kind called "Disjunctive;" the *alternative* being denoted by "either" and "or."

The above division of Propositions (into Categorical and Hypothetical) is called in the phraseology of Logical writers, a "division of them according to their *substance*;" *i. e.* considered simply as *sentences*.

The "characteristic-*quality*" [Differentia] of a Proposition being its "*asserting*,"—*i. e.* "affirming or denying" something, hence Propositions are divided, according to their "*Quality*," into "affirmative" and "negative." The division of them again, into "true" and "false," is also called a division according to their "*quality*;" namely, the "*quality of the Matter*:" (as it has relation to the subject-matter one is treating of) while the other kind of quality (a proposition's being *affirmative or negative*) is "the quality of the *expression*."

The "quality of the matter" is considered (in relation to our present inquiries) as *accidental*, and the "quality of the expression" as *essential*. For though the truth or falsity of a proposition—for instance, in Natural-history, is the most essential point in reference to *Natural-history*, and of a *mathematical* proposition, in reference to *Mathematics*, and so in other cases,—this is merely accidental in reference to an inquiry (such as the present) only as to *form of expression*. In reference to *that*, the essential difference is that between affirmation and negation.

And here it should be remarked by the way, that as, on the one hand every *Proposition* must be either true or false, so, on the other hand, *nothing else* can be, strictly speaking, either true or false. In colloquial language however, "true" and "false" are often more loosely applied; as when men speak of the "*true cause*" of any thing; meaning, "the *real cause*;"—the "true heir," that is, the *rightful heir*;—a "*false prophet*,"—that is, a *pretended prophet*, or one who *utters falsehoods*;—a "true" or "false" argument; meaning a *valid*, [real] or an *apparent*-argument;—a man "true," or "false" to his friend; *i. e. faithful* or *unfaithful*, &c.

Another division of propositions is according to their *quantity*. *tity* [or extent.] If the Predicate is said of the *whole* of the Subject, the proposition is *Universal*: if of *part* of it only, the proposition is *Particular* (or partial:) *e. g.* "Britain is an island;" "all tyrants are miserable;" "no miser is rich;" are *Universal* propositions, and their subjects are therefore said to be *distributed*; being understood to stand, each, for *the whole* of its Significates: but, "*some islands are fertile*;" "all tyrants are not assassinated;" are *Particular*, and their subjects, consequently, not *distributed*, being taken to stand for a *part* only of their Significates.

As every proposition must be either *Affirmative* or *Negative*, and must also be either *universal* or *particular*, we reckon, in all, four kinds of pure categorical propositions, (*i. e.* considered as to their quantity and quality *both*;) *viz.* Universal Affirmative, whose symbol (used for brevity) is *A*; Universal Negative, *E*; Particular Affirmative, *I*; Particular Negative, *O*.

§2.

It is evident that the *subject* is *distributed* in every *universal* proposition, and never in a *particular*: (that being the very difference between universal and particular propositions:) but the distribution or non-distribution of the *predicate*, depends (not on the *quantity*, but) on the *quality*, of the proposition; for, if any *part* of the *predicate* agrees with the Subject, it must be *affirmed* and not *denied* of the Subject; therefore, for an Affirmative-proposition to be true, it is *sufficient* that some *part* of the *predicate* agrees with the Subject; and (for the same reason) for a Negative to be true, it is necessary that the *whole* of the predicate should *disagree* with the Sub-

ject: *e. g.* it is true that "learning is useful" though the whole of the term "useful" does not agree with the term "learning" (for many things are useful besides learning;) but "no vice is useful," would be false if any part of the term "useful" agreed with the term "vice;" *i. e.* if you could find any one useful thing which was a vice.

The two practical rules then to be observed respecting distribution, are:

1st, All universal propositions (and no particular) distribute the *subject*.

2. All *negative* (and no affirmative) the predicate.*

It *may happen* indeed, that the whole of the predicate in an affirmative may agree with the subject; *e. g.* it is equally true, that "all men are rational animals;" and "all rational animals are men;" but this is merely *accidental*, and is not at all *implied* in the *form of expression*, which alone is regarded in Logic.†

Of Opposition.

§ 3.

Two propositions are said to be *opposed* to each other, when,

* Hence, it is matter of common remark, that it is difficult to prove a Negative. At first sight this appears very obvious, from the circumstance that a Negative has one more Term distributed than the corresponding Affirmative. But then, again, a difficulty may be felt in accounting for this, inasmuch as any Negative may be expressed (as we shall see presently) as an Affirmative, and *vice versa*. The proposition, *e. g.* that "such a one is not in the Town," might be expressed by the use of an equivalent term, "he is absent from the Town."

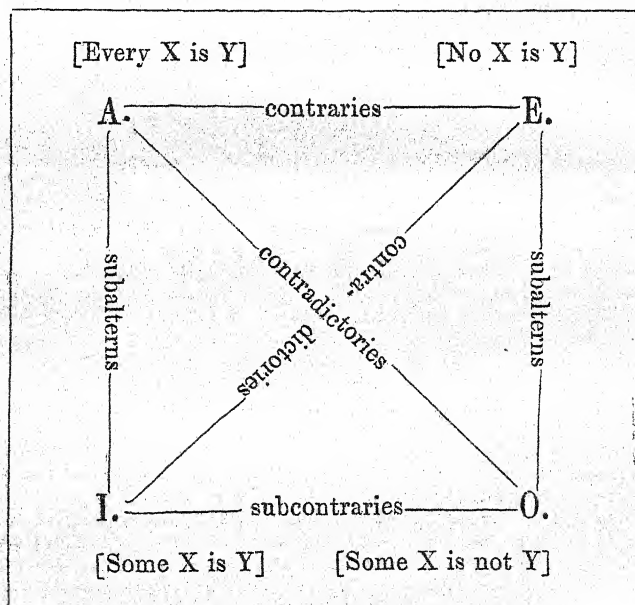
The fact is, however, that in every case where the observation as to the difficulty of proving a Negative holds good, it will be found that the proposition in question is contrasted with one which has really a term the less, distributed; or a term of less extensive sense. *E. G.* It is easier to prove that a man has proposed wise measures, than that he has never proposed an unwise measure. In fact, the one would be to prove that "Some of his measures are wise;" the other, that "All his measures are wise." And numberless such examples are to be found.

But it will very often happen that there shall be negative propositions much more easily established than certain Affirmative ones on the same subject. *E. G.* That "The cause of animal-heat is *not* respiration," is said to have been established by experiments; but *what* the cause *is* remains doubtful. See Note to Chap. III. § 5.

† When, however, a Singular Term is the Predicate, it must, of course, be coextensive with the Subject; as "Romulus was the founder of Rome." In this and also in some other cases we judge, not from the *form* of the expression, but from the *signification* of the terms, that they are "equivalent" ["convertible"] terms.

having the same Subject and Predicate, they differ, in *quantity*, or *quality*, or *both*. It is evident, that with any given subject and predicate, you may state four distinct propositions, *viz.* A, E, I, and O; any two of which are said to be *opposed*;* hence there are four different kinds of opposition, *viz.* 1st, the two universals (A and E) are called *contraries*

Contraries. Subcontraries. Contradictories. to each other; 2d, the two particular, (I and O) *subcontraries*; 3d, A and I, or E and O, *subalterns*; 4th, A and O, or E and I, *contradictories*.



“Contradictory-opposition” is the kind most frequently

alluded to, because to *deny*,—or to *disbelieve*,—a proposition, is to *assert*, or to *believe*, its Contradictory; and of course, to *assent* to, or *main-*

* In ordinary language however, and in some logical treatises, propositions which do not differ in *Quality* (*viz.* *Subalterns*) are not reckoned as “opposed.”

tain a proposition, is to reject its Contradictory. Belief therefore, and Disbelief, are not *two different* states of the mind, but the *same*, only considered in reference to two Contradictory propositions. And consequently, *Credulity* and *Incredulity* are not opposite habits, but the same; in reference to some class of propositions, and to their contradictories.

For instance, he who is the most *incredulous* respecting a certain person's *guilt*, is, in other words, the most ready to believe him *not guilty*; he who is the most credulous* as to certain works being within the reach of Magic, is the most incredulous [or "slow of heart to believe"]† that they are *not* within the reach of Magic; and so, in all cases.

The reverse of *believing this or that individual* proposition, is, no doubt, to *disbelieve that same* proposition: but the reverse of *belief generally*, is (not disbelief; since that implies belief; but) *doubt*.†

* As the Jews, in the time of Jesus, in respect of his works.

† And there may even be cases in which *doubt* itself may amount to the most extravagant credulity. For instance, if any one should "doubt whether there is any such Country as Egypt," he would be in fact *believing* this most incredible proposition; that "it is *possible* for many thousands of persons, unconnected with each other, to have agreed, for successive Ages, in bearing witness to the existence of a fictitious Country, without being detected, contradicted, or suspected."

All this, though self-evident, is in practice, frequently lost sight of: the more, on account of our employing, in reference to the Christian Religion, the words "*Believer* and *Unbeliever*;" whence, unthinking persons are led to take for granted that the rejection of Christianity implies a less *easy belief* than its reception.

The only way to be safe from credulity on a given subject, is either to examine carefully and dispassionately, and decide according to the evidence, or else to withdraw your thoughts from it altogether. *E. G.* In some legal trial which does not concern or interest us, we neither pronounce that the plaintiff *has* a just title to the property he claims, nor again that he has *not* a just title, nor yet, that there *is no sufficient evidence* to show whether his title is just or not; but we disregard the whole question.

Hence we may perceive that "*private judgment*," the *right*, and the *duty* of which have long been warmly debated, is a thing *unavoidable*, in any matter concerning which one takes an interest. For if a man resolves that he will implicitly receive, *e. g.* in Religious points, all the decisions of a certain Pastor, Church, or Party, he *has*, in so doing, performed *one* act of private-judgment, which includes all the rest; just as if a man, distrusting his own skill in the management of property, should make over his whole estate to trustees; in doing which he *has* exercised an act of ownership; for which act, generally, and for the choice of such and such particular trustees, he is responsible.

Of Conversion.

§4.

A proposition is said to be *converted* when its Terms are *transposed*; i. e. when the Subject is made the Predicate, and the Predicate the Subject. When nothing more is done, this is called *simple conversion*.

No conversion is employed for any logical purpose, unless it be *illative*; * i. e. when the truth of the converse is implied by the truth of the Exposita, (or proposition given;) e. g.

“No virtuous man is a rebel, *therefore*
No rebel is a virtuous man.”

“No Christian is an astronomer, *therefore*
No astronomer is a Christian.”†

“Some boasters are cowards, *therefore*
Some cowards are boasters.”

Conversion then, strictly so called,—that is, “illative-conversion,”—can only take place when no term is distributed in the converse, which was undistributed in the “Exposita.”

Hence, since E [Universal-negative] distributes both terms, and I, [Particular-affirmative] neither, these may both be simply-converted illatively; as in the examples above. But as A does not distribute the Predicate, its simple-conversion would not be illative; (e. g. from “all birds are animals,” you cannot infer that “all animals are birds,”) as there would be a term distributed in the Converse, which was not before.

* The reader must not suppose from the use of the word “illative,” that this conversion is a process of *reasoning*: it is in fact only stating the same Judgment in another form.

† When Galileo’s persecutors endeavoured to bring about the former of these, they forgot that it implied the latter. And the same may be said of some opponents of Geology at the present day.

We must therefore *limit its quantity* from universal to particular, and the Conversion will be illative (e. g. "some animals are birds;") this might be fairly named conversion by *limitation*; but is commonly called "*Conversion per accidens*." E may thus be converted also. But in O, whether the quantity be changed or not, there will still be a term (the predicate of the converse) distributed which was not before: you can therefore only convert it illatively, by changing the quality; i. e. considering the negative as attached to the *predicate instead of to the copula*, and thus regarding it as I. One of the terms will then not be the same as before; but the proposition will be equi-pollent (i. e. convey the same meaning); e. g. "some who possess wealth are not happy:" you may consider "*not-happy*" as the predicate, instead of "*happy*;" the proposition will then be I, and of course may be simply converted; "some who are not happy possess wealth:" or, (as such a proposition is often expressed) "one may possess wealth *without* being happy." This may be named conversion by *negation*; or as it is commonly called, by *contraposition*.

A may also be fairly converted in this way, *e. g.*

"Every poet is a man of genius ; *therefore*

He who is not a man of genius is not a poet :”

(or, "None but a man of genius can be a poet:":

or, "A man of genius alone can be a poet:"

or, "One cannot be a poet without being a man of genius.")

For (since it is the same thing to *affirm* some attribute of the subject, or to *deny* the *absence* of that attribute) the original proposition [Exposita] is precisely equipollent to this.

subj. pred.
 "No poet is not-a-man-of-genius;"
 G

which, being E, may of course be simply converted. Thus, in one of these three ways, every proposition may be illatively converted: *viz. E, I. Simply; A, O, by Negation; A, E, —Limitation.*

Note, that as it was remarked that, in some affirmatives, the whole of the Predicate does actually agree with the Subject, so, Convertible terms. when this is the case, A being converted simply, the Converse will be *true*: but still, as its truth does not follow from that of the original proposition ["*exposita*"] the Conversion is not *illative*. Many propositions in mathematics are of this description: *e. g.*

"All equilateral triangles are equiangular;" and

"All equiangular triangles are equilateral."

Though both these propositions are true, the one does not follow from the other; and mathematicians accordingly give a distinct proof of each.

CHAP. III.—Of Arguments.

§1.

THE third operation of the mind, *viz. reasoning*, [or "*discourse*"] expressed in words, is *argument*; and an argument stated *at full length*, and in its *regular form*, is called a *syllogism*. The third part of Logic therefore treats of the *syllogism*. Every argument consists of two parts; that which is *proved*; and that *by means of which* it is proved. The former is called, *before* it is proved, the *question*; *when proved*, the *conclusion*, [or *inference*]; that which is used to prove it, if stated *last* (as is often done in *common discourse*), is called the *reason*, and is introduced by "*because*," or some other *causal* conjunction; *e. g.* "Cæsar deserved death, *because* he was a tyrant, and all tyrants deserve death." If the conclusion be stated *last* (which is the strict *logical form*, to which all Reasoning may be reduced) then, that which is employed to prove it is called the *premises*,* and the Conclusion is then introduced by some *illative* conjunction, as "*therefore*," *e. g.*

* Both the premises together are sometimes called the *antecedent*.

“All tyrants deserve death :
 Cæsar was a tyrant ;
 therefore he deserved death.”

Since, then, an argument is an expression in which “from
 Definition of something laid down and granted as true (*i. e.*
 Argument. *the Premises*) something else (*i. e. the Conclusion*) beyond this must be admitted to be true, as following necessarily [resulting] from the other;” and since Logic is wholly concerned in the use of language, it follows that a
 Definition of Syllogism (which is an argument stated in a
 Syllogism. regular logical form) must be “an argument so expressed, that the conclusiveness of it is manifest from *the mere force of the expression*,” *i. e.* without considering the meaning of the terms: *e. g.* in this Syllogism, “Every Y is X, Z is Y, therefore Z is X:” the Conclusion is inevitable, whatever terms X, Y, and Z respectively are understood to stand for. And to this form all legitimate Arguments may ultimately be brought.

One circumstance which has misled some persons into the notion that there may be Reasoning that is not, substantially, syllogistic, is this; Necessary and that in a Syllogism we see the Conclusion following
 probable conclusions. *certainly* [or *necessarily*] from the Premises; and again, in any apparent-syllogism which on examination is found to be (as we have seen in some of the examples) not a *real* one [not “valid”] the Conclusion *does not follow at all*; and the whole is a mere deception. And yet we often hear of Arguments which have *some* weight, and yet are not quite *decisive*;—of Conclusions which are rendered *probable*, but not absolutely *certain*, &c. And hence some are apt to imagine that the *conclusiveness* of an Argument admits of *degrees*; and that sometimes a conclusion may, *probably* and *partially*,—though not *certainly* and *completely*,—follow from its Premises.

This mistake arises from men’s forgetting that the *Premises themselves* will very often be *doubtful*; and then, the Conclusion also will be doubtful.

As was shown formerly, one or both of the Premises of a perfectly valid Syllogism may be utterly false and absurd: and then, the Conclusion, though inevitably following from them, may be either true or false, we cannot tell which. And

if one or both of the Premises be merely probable, we can infer from them only a *probable* Conclusion; though the *conclusiveness*,—that is, the connexion between the Premises and the Conclusion—is perfectly certain.

For instance, assuming that “every month has 30 days” (which is palpably false) then, from the minor-premiss that “April is a month,” it follows (which happens to be true) that “April has 30 days:” and from the minor-premiss that “February is a month,” it follows that “February has 30 days;” which is false. In each case the conclusiveness of the Argument is the same; but in every case, when we have ascertained the falsity of one of the Premises, we know nothing (as far as *that argument* is concerned) of the truth or falsity of the Conclusion.

When however we are satisfied of the falsity of some *Conclusion*, we may, of course, be sure that (at least) one of the Premises is false; since if they had both been true, the Conclusion would have been true.

And this—which is called the “*indirect*” mode of proof—is often employed (even in Mathematics) for establishing what we maintain: that is, we prove the *falsity* of some Proposition (in other words, the *truth* of its *contradictory*) by showing that if assumed as a Premiss, along with another Premiss known to be true, it leads to a Conclusion manifestly false. For though, from a false assumption, either falsehood or truth may follow, from a true assumption, truth only can follow.

§2.

The Rule or Maxim (commonly called “*dictum de omni et nullo*”) by Aristotle’s dictum. which Aristotle explains the validity of the above Argument (every Y is X, Z is Y, therefore Z is X), is this: *whatever is predicated of a term distributed, whether affirmatively or negatively, may be predicated in like manner of every thing contained under it.* Thus, in the example above, X is predicated of Y distributed, and Z is contained under Y (i. e. is its Subject;) therefore X is predicated of

Z: so "all tyrants," &c. (§ 1.) This rule may be *ultimately* applied to all arguments; (and their validity ultimately rests on their conformity thereto) but it cannot be *directly and immediately* applied to *all* even of pure *categorical* syllogisms; for the sake of brevity, therefore, some other Axioms are commonly applied in practice, to avoid the occasional tediousness of reducing all syllogisms to that form in which Aristotle's *dictum* is applicable.

1st. *Every syllogism has three, and only three terms: viz.* the middle-term, and the two terms (or *extremes*, as they are commonly called) of the Conclusion [or Question]. Of these, 1st, the *subject* of the Conclusion is called the *minor-term*; 2d, its *predicate*, the *major-term*; and 3d, the *middle-term*, (called by the older logicians "Argumentum,") is that with which each of them is separately compared, in order to judge of their agreement or disagreement with each other. If therefore there were *two* middle-terms, the *extremes* (or *terms of conclusion*) not being both compared to the *same*, could not be conclusively compared to each other.

2d. *Every syllogism has three, and only three propositions: viz.* 1st, the *major-premiss* (in which the *major term* is compared with the *middle*;) 2d, the *minor-premiss* (in which the *minor-term* is compared with the *middle*;) and 3d, the Conclusion, in which the *Minor-term* is compared with the *Major*.

3d. Note, that *if the middle-term is ambiguous, there are in reality two middle-terms in sense, though but one in sound.* An ambiguous Middle-term is either an *equivocal* term used in different senses in the two premisses: (*e. g.*

"Light is contrary to darkness;
Feathers are *Light*; therefore
Feathers are contrary to darkness:")

or a term *distributed*: for as it is then used to stand for a *part* only of its *significates*, it may happen that one of the *Extremes* may have been compared with *one part* of it, and the other with another part of it; *e. g.*

"White is a colour,
Black is a colour; therefore
Black is white."—Again,

"Some animals are beasts,
Some animals are birds; therefore
Some birds are beasts."

The middle-term therefore must be distributed once, at least, in the premisses; (i. e. by being the Subject of an Universal, or Predicate of a Negative, Chap. II. §2,) and once is sufficient; since if one extreme has been compared to a part of the middle-term, and another to the whole of it, they must have been both compared to the same.

4th. *No term must be distributed in the conclusion which was not distributed in one of the premisses; for that (which is called an illicit process, either of the Major or the Minor term) would be to employ the whole of a term in the Conclusion, when you had employed only a part of it in the Premiss; and thus, in reality, to introduce a fourth term: e. g.*

"All quadrupeds are animals,
A bird is not a quadruped; therefore
It is not an animal."—Illicit process of the major.

Again, "What is related in the Talmud is unworthy of credit: Miraculous stories are related in the Talmud; therefore Miraculous stories are unworthy of credit." If this conclusion be taken as A, there will be an "illicit process of the Minor-term;" (since every one would understand the Minor-premiss as particular) but a *particular* conclusion may fairly be inferred. In the case of an illicit-process of the *Major*, on the contrary, the premisses do not warrant *any* conclusion at all.

5th. *From negative premisses you can infer nothing.* For in them the Middle is pronounced to *disagree with both extremes*; not, to *agree with both*; or, to agree with one, and *disagree* with the other; therefore they cannot be compared together; *e. g.*

"A fish is not a quadruped;"

"A bird is not a quadruped," proves nothing.

6th. *If one premiss be negative, the conclusion must be negative*; for in that premiss the middle-term is pronounced to disagree with one of the Extremes, and in the other premiss (which of course is affirmative by the preceding rule) to agree with the other extreme; therefore the Extremes disagreeing with each other, the Conclusion is negative. In the same manner it may be shown, that *to prove a negative conclusion one of the Premises must be a negative.*

By these six rules all categorical Syllogisms are to be tried; and from them it will be evident; 1st, that *nothing can be proved from two particular Premises*; (since you will then have *either the middle Term undistributed, or an illicit process*. For if each premiss were I, there would be no distribution of any term at all: and if the premisses were I and O, as

Some animals are sagacious;
Some beasts are not sagacious;
Some beasts are not animals."

there would be but one term—the predicate of O—distributed; and supposing that one to be the Middle, then, the conclusion (being of course negative, by rule 6th) would have its predicate,—the Major-term—distributed, which was undistributed in the premiss. And, for the same reason, 2dly, that if one of the Premises be particular, the Conclusion must be particular; *e. g.*

"All who fight bravely deserve reward;
Some soldiers fight bravely;" you can only infer that
"Some soldiers deserve reward:"

for to infer a universal Conclusion would be an "illicit-process of the Minor." But from two universal Premises you cannot always infer a universal Conclusion; *e. g.*

"All gold is precious;
All gold is a mineral; therefore
Some mineral is precious."

And even when we *can* infer a universal, we are always *at liberty* to infer a particular; since what is predicated of *all* may *of course* be predicated of some.

Of Moods.

§3.

When we designate the three propositions of a syllogism in their order, according to their respective "Quantity" and "Quality" (indicated by their *symbols*) we are said to determine the *mood* of the syllogism. *E. G.* The example just above, "all gold, &c." is in the Mood A, A, I.

As there are four kinds of propositions, and three propositions in each syllogism, all the possible ways of combining these four, (A, E, I, O,) by threes, are sixty-four. For, any one of these four may be the major-premiss; each of these four majors may have four different minors; and of these sixteen pairs of premises, each may have four different conclusions. $4 \times 4 (=16) \times 4 = 64$. This is a mere arithmetical calculation of the Moods, without any regard to the logical rules; for many of these Moods are inadmissible in practice, from violating some of those rules; *e. g.* the Mood E, E, E, must be rejected as having *negative premises*: I, O, O, for *particular premises*; and many others for the same faults; to which must be added I, E, O, for an "illicit-process of the major," in every Figure; since the Conclusion, being negative, would distribute the Major-term, while the Major-premiss, being I, would distribute no term. By examination then of all, it will be found that, of the sixty-four there remain but eleven Moods which can be used in a legitimate syllogism. *viz.* A, A, A, A, A, I, A, E, E, A, E, O, A, I, I, A, O, O, E, A, E, E, A, O, E, I, O, I, A, I, O, A, O.

Of Figure.

§4.

The Figure of a syllogism consists in the situation of the Middle-term with respect to the Extremes of the Conclusion, [*i. e.* the major and minor term.] When the Middle-term is made the *subject of the major premiss, and the predicate of the minor*, that is called the first Figure; which is far the most natural and clear of all, as to this alone Aristotle's dictum may be *at once* applied. In the Second-Figure the Middle-term is the *predicate of both* premises: in the Third, the

subject of both : in the Fourth, the *predicate* of the Major premiss, and the *subject* of the Minor. This Figure is the most awkward and unnatural of all, being the very reverse of the first.*

Note, that the *proper order*† is to place the Major premiss *first*, and the Minor *second* ; but this does not *constitute* the Major and Minor premisses ; for that premiss (wherever placed) is the Major, which *contains the major term*, and the Minor, the minor (v. R. 2. § 2.)

Each of the allowable moods mentioned above will not be allowable in every Figure ; since it may violate some of the foregoing rules, in one Figure, though not in another : *e. g.* I, A, I, is an allowable mood in the third Figure ; but in the first it would have an *undistributed middle*.‡ So A, E, E, would in the first Figure have an *illicit process of the major*, but is allowable in the second : and A, A, A, which in the first Figure is allowable, would in the third have an *illicit process of the minor* : all which may be ascertained by trying the different Moods in each figure, as per scheme.

Let X represent the Major term, Z the Minor, Y the Middle.

1st Fig.	2d Fig.	3d Fig.	4th Fig.
Y, X,	X, Y,	Y, X,	X, Y,
Z, Y,	Z, Y,	Y, Z,	Y, Z,
Z, X,	Z, X,	Z, X,	Z, X,

The Terms alone being here stated, the *quantity and quality* of each Proposition (and consequently the Mood of the whole Syllogism) is left to be filled up : (*i. e.* between Y and X, we may place either a *negative* or *affirmative* Copula : and we may prefix either a *universal* or *particular* sign to Y.) By applying the Moods then to each Figure, it will be found that each figure will admit six Moods only, as not violating the rules against *undistributed middle*, and against *illicit process* : and of the Moods so admitted, several (though valid) are *useless*, as having a particular Conclusion, when a *universal might have been drawn* ; *e. g.* A, A, I, in the first Figure.

* It was not recognised by Aristotle, and need not occupy us here.

† *Proper*, *i. e.* in a *Treatise on Logic* or in a *logical analysis* ; not, necessarily in *ordinary discourse*. This remark may appear superfluous, but that I have known a writer, generally acute and intelligent, fall into the strange misapprehension alluded to. The *proper* collocation of plants in a botanical herbarium, and in a flower-garden, and again, on a farm, would be widely different.

‡ *E. G.* Some restraint is salutary : all restraint is unpleasant : something unpleasant is salutary. Again : Some herbs are fit for food : nightshade is an herb : some nightshade is fit for food.

“All human creatures are entitled to liberty;
All slaves are human creatures; therefore
Some slaves are entitled to liberty.”

Of the twenty-four Moods, then, (six in each Figure,) five are for this reason neglected: for the remaining nineteen, logicians have devised names to distinguish both the Mood itself, and the Figure in which it is found; since when one Mood (*i. e. one in itself*, without regard to Figure) occurs in two different Figures, (as E, A, E, in the first and second) the mere letters denoting the mood would not inform us concerning the figure. In these names, then, the *three vowels* denote the propositions of which the Syllogism is composed: the consonants (besides their other uses, of which hereafter) serve to keep in mind the Figure of the Syllogism.

Fig. 1. { bArbArA, cElArEnt, dArII, fErIOque prioris.

Fig. 2. { cEsArE, cAmEstrEs, fEstInO, bArOkO, secundæ.

Fig. 3. { tertia, dArAptI, dIsAmIs, dAtIsI, fElAptOn,
bOkArdO, fErIsO, habet: quarta insuper addit.

Fig. 4. { brAmAntIp, cAmEnEs, dImArIs, fEsApO,
frEsIsOn.

By a careful study of these mnemonic lines (which must be committed to memory) you will perceive that A can only be proved in the First-Figure, in which also every other proposition may be proved; that the Second proves *negatives*: the Third only *particulars*: that the First-Figure requires the major-premiss to be *universal*, and the *affirmative*, &c.; with many other such observations, which will readily be made, (on trial of several Syllogisms, in different Moods) and the reasons for which will be found in the foregoing rules. *E. G.* To show why the Second-Figure has only Negative Conclusions, we have only to consider that in it the middle-term being the *predicate in both premises*, would not be *distributed* unless one premiss were *negative*; (Chap. II. §2.) therefore the Conclusion must be negative also, by Chap. III. §2, Rule 6. One Mood in each figure may suffice in this place by way of example:

First, *Barbara*, viz. (bAr) “Every Y is X; (bA) every Z is Y; therefore (rA) every Z is X:” *e. g.* let the major-term (which is represented by X) be “one who possesses all virtue;” the minor-term (Z) “every man who possesses one virtue;” and the middle-term (Y) “every one who possesses prudence;” and you will have the celebrated argument of Aristotle, *Eth.* sixth book, to prove that the virtues are inseparable; viz.

“He who possesses prudence, possesses all virtue;
He who possesses one virtue, must possess prudence; therefore
He who possesses one, possesses all.”

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Second, *Camestres*, (cAm) "every X is Y; (Es) no Z is Y; (trEs) no Z is X." Let the major-term (X) be "true philosophers," the minor (X) "Epicureans;" the middle (Y) "reckoning virtue a good in itself;" and this will be part of the reasoning of Cicero, *Off*, book first and third, against the Epicureans.

Third, *Darapti*, viz. (dA) "Every Y is X; (rAp) every Y is Z; therefore (tI) some Z is X:" e. g.

"Prudence has for its object the benefit of individuals; but prudence is a virtue: therefore some virtue has for its object the benefit of the individual,"

is part of Adam Smith's reasoning (*Moral Sentiments*) against Hutcheson and others, who placed all virtue in benevolence.

Fourth, *Camenes*, viz. (cAm) "every X is Y; (En) no Y is Z; therefore (Es) no Z is X:" e. g.

"Whatever is expedient, is conformable to nature;
Whatever is conformable to nature, is not hurtful to society; therefore
What is hurtful to society is never expedient;"

is part of Cicero's argument in *Off*. Lib. iii.; but it is an inverted and clumsy way of stating what would much more naturally fall into the First-Figure; for if you examine the Propositions of a Syllogism in the Fourth-Figure, beginning at the *Conclusion*, you will see that as the major term is predicated of the minor, so is the minor of the middle, and that again of the major; so that the major appears to be merely *predicated of itself*. Hence the five Moods in this Figure are seldom or never used; some one of the fourteen (*moods with names*) in the first three Figures, being the forms into which all arguments may most readily be thrown: but of these, the four in the First-Figure are the clearest and most natural; as to them Aristotle's Dictum will *immediately* apply.

As it is on the Dictum above-mentioned that all Reasoning *ultimately* depends, so, all arguments may be in one way or other brought into some one of the four Moods in the First-Figure: and a Syllogism is, in that case, said to be *reduced*: (*i. e. to the first figure.*)

Ostensive Reduction.

§5.

In reducing a Syllogism, we are not, of course, allowed to introduce any new Term or Proposition, having nothing granted but the truth of the Premises; but these Premises are allowed to be *illatively converted* (because the truth of any Proposition *implies* that of its illative Converse) or *transposed*: by taking advantage of this liberty, where there is need, we deduce (in Figure 1st), from the Premises originally given, either the *very same Conclusion* as the original one, or another from which the *original Conclusion* follows by illative *Conversion*. E. G. *Darapti*,

"All wits are dreaded;
All wits are admired;
Some who are admired are dreaded,"

is reduced into *Darii*, by converting "by limitation" (*per accidens*) the minor Premiss.

"All wits are dreaded;
Some who are admired are wits; therefore
Some who are admired are dreaded."

And *Camestres*,—*e. g.*

"All true philosophers account virtue a good in itself;
The advocates of pleasure do not account, &c.
Therefore they are not true philosophers,"

is reduced to *Celarent*, by simply converting the Minor, and then transposing the Premises.

"Those who account virtue a good in itself, are not advocates of pleasure;
All true philosophers account virtue, &c. : therefore
No true philosophers are advocates of pleasure."

This Conclusion may be *illatively converted* into the original one. So, *Baroko* ; *e. g.*

Reduction by means of conversion by negation. "Every true patriot is a friend to religion;
Some great statesmen are not friends to religion;
Some great statesmen are not true patriots,"

to *Ferio*, by converting the major *by negation*, ["contraposition,"]

"He who is not a friend to religion, is not a true patriot;
Some great statesmen," &c.

and the rest of the Syllogism remains the same; only that the minor Premiss must be considered as affirmative, because you take "not-a-friend-to-religion," as the middle term. In the same manner *Bokardo* to *Darii* ; *e. g.*

"Some slaves are not discontented;
All slaves are wronged; therefore
Some who are wronged are not discontented."

Convert the major "by negation" ("contraposition") and then transpose them; the Conclusion will be the *converse by negation of the original one*, which therefore may be inferred from it; *e. g.*

"All slaves are wronged;
Some who are not discontented are slaves;
Some who are not discontented are wronged."

In these ways (by what is called *Ostensive Reduction*, because you prove, in the first figure, either the *very same* Conclusion as before, or one *which implies it*) all the imperfect Moods may be reduced to the four perfect ones. But there is also another way, called *Indirect-reduction*, or

Reductio ad impossibile.

§6.

By which we prove (in the First-Figure) not, directly, that the original

Conclusion is *true*, but that it *cannot be false*; i. e. that an absurdity would follow from the supposition of its being false; e. g.

"All true patriots are friends to religion;
Some great statesmen are not friends to religion;
Some great statesmen are not true patriots:

if this Conclusion be not true, its contradictory must be true; viz.

"All great statesmen are true patriots:"

let this then be assumed, in the place of the minor Premiss of the original Syllogism, and a false conclusion will be proved e. g.

bAr, "All true patriots are friends to religion;
bA, All great statesmen are true patriots;
rA, All great statesmen are friends to religion;"

for as this Conclusion is the Contradictory of the original minor Premiss, it must be false, since the Premises are always supposed to be granted: therefore one of the *Premises* (by which it has been correctly proved) must be false also; but the major Premiss (being one of those originally granted) is *true*; therefore the *false* must be in the minor Premiss; which is the *contradictory* of the original Conclusion; therefore the original Conclusion must be true. This is the *indirect* mode of Reasoning.

§ 7.

This kind of Reduction is seldom employed but for *Baroko* and *Bokardo*, which are thus reduced by those who confine themselves to *simple* Conversion, and Conversion by limitation, (*per accidens*;) and they framed the names of their Moods, with a view to point out the manner in which each is to be reduced; viz. B, C, D, F, which are the initial letters of all the Moods, indicate to which Mood of the first-figure (*Barbara*, *Celarent*, *Darii*, and *Ferio*) each of the others is to be reduced, *m* indicates that the Premises are to be *transposed*; *s* and *p*, that the Proposition denoted by the vowel immediately preceding, is to be *converted*; *s*, simple, *p*, *per accidens*, [by limitation:] thus, in *Camestres*, (see example,) the *C* indicates that it must be reduced to *Celarent*; the two *ss*, that the minor Premiss and Conclusion must be *converted simply*; the *m*, that the Premises must be *transposed*. The *P*, in the mood *Bramantip*, denotes that the Premises warrant a Universal-conclusion in place of a Particular. The *I*, though of course it cannot be illatively converted *per accidens*, viz.: so as to become *A*, yet is thus converted in the Conclusion, because as soon as the Premises are transposed (as denoted by *m*.) it appears that a Universal Conclusion follows from them.

K (which indicates the reduction *ad impossibile*) is a sign that the Proposition, denoted by the vowel immediately before it, must be left out, and the contradictory of the Conclusion substituted; viz. for the minor Premiss in *Baroko* and the major in *Bokardo*. But it has been already shown (§5) that the Conversion by "contraposition," [by "negation"] will enable us to reduce these two Moods, *ostensively*.

CHAPS. IV & V.—*Of Modal Syllogisms, &c.*

§1.

In the former of these two chapters Archbishop Whately treats of "Modal Syllogisms, and of all Arguments besides regular and pure-categorical Syllogisms." In the latter he treats of the divisions of Names into *univocal, equivocal, &c.*, for information regarding which we refer the reader to No. III, of our "Reprints."

A *modal* proposition asserts that the Predicate is or is not contained in the Subject in a certain *mode*, or manner; as, "accidentally," "wilfully," &c. A proposition formed of two others, connected by the conjunction "if" or "or," is called a *Hypothetical* proposition. "If Logic is useless, it deserves to be neglected," and "Either Logic is useless, or it deserves to be cultivated"—are hypothetical propositions. In the chapter of Whately just referred to, special rules are laid down for the examination of arguments which involve modal and hypothetical propositions. Every valid Argument, as has been declared more than once, can be brought to, and will stand the test of the Universal Principle of Reasoning laid down at p. 18. It will be sufficient for our present purpose if we indicate the way in which a hypothetical argument may be submitted to this test.

Suppose we have the following Syllogism :—"If any thing is created in vain, then venomous serpents must be in some way useful :—but nothing is created in vain ; therefore venomous serpents must be in some way useful."

We may alter the form of the propositions, without altering their sense ; and, placing the major proposition first, we may state the reasoning in the following shape :—

"The case of nothing being created in vain, is the case in reality :—But the fact of venomous serpents being in some way useful, is implied in the case of nothing being created in vain ; therefore,—The fact of venomous serpents being in some way useful is the case in reality."

This reasoning, represented in letters, stands thus :—

"X is B ;
A is X ;
Therefore A is B"

which complies with the universal rule.

The following examples may be similarly tested :—

I.—If this man has a fever, he is not fit to travel. I find that he is not fit to travel ; I conclude therefore that he has a fever.—

II.—If the Stoics are right, pain is no evil ; but pain is an evil ; therefore the Stoics are not right.

III.—If this man has committed theft, he deserves punishment: but he has not committed theft; therefore he does not deserve to be punished.

IV.—Either pain is no evil, or the Stoics are wrong:—but pain is an evil; therefore the Stoics are not right.

Here follow some remarks on the notions expressed by Common-terms.

§2.

The notions expressed by Common-terms, we are enabled (as has been remarked in the Analytical Outline) to form, by the faculty of *abstraction*: for by it, in contemplating any object (or objects,) we can attend exclusively to some particular circumstances belonging to it, [some certain parts of its nature as it were,] and quite withhold our attention from the rest.

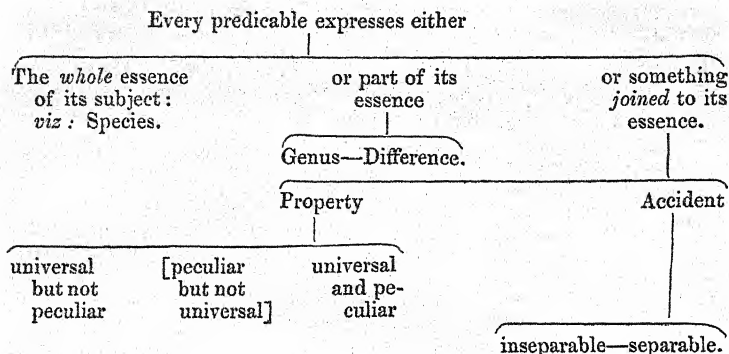
Generalization. When, therefore, we are thus contemplating several individuals which *resemble* each other in some *part* of their nature, we can (by attending to *that part alone*, and not to those points wherein they differ) assign them *one common name*, which will express or stand for them merely as far as they all *agree*; and which, of course, will be applicable to all or any of them; (which process is called *generalization*) and each of these names is called a *common-term*, from its belonging to them *all alike*; or a *Predicable*, because it may be predicated-affirmatively of them, or of any of them. (See B. I. § 3.)

Generalization (as has been remarked) implies Abstraction; but it is not the same thing; for there may be abstraction without generalization. When we are speaking of an Individual, it is usually an abstract notion that we form; *e. g.* suppose we are speaking of the present King of France; he must actually *be* either at Paris or elsewhere; sitting, standing, or in some other posture; and in such and such a dress, &c. Yet many of these circumstances, (which are *separable* Accidents, and consequently) which are regarded as *non-essential to the individual*, are quite disregarded by us; and we *abstract* from them what we consider as essential; thus forming an *abstract* notion of the Individual. Yet there is here no generalization.

§3.

The following is the account usually given in logical treatises of the different kinds [heads] of Predicables; but it cannot be admitted without some considerable modifications, explanations and corrections, which will be subjoined.

Whatever Term can be affirmed of several things, must express either their *whole essence*, which is called the *Species*; or a *part* of their essence (*viz.* either the *material part*, which is called the *Genus*, or the *formal and distinguishing part*, which is called *Differentia*, or in common discourse, *characteristic*) or something *joined* to the *essence*; whether necessarily (*i. e.* to the *whole species*, or, in other words, *universally*, to every individual of it), which is called a *Property*: or *contingently* (*i. e.* to *some individuals only* of the species), which is an *Accident*.



It is evident from what has been said, that the Genus and Difference put together make up the Species. *E. G.* Genus and Species, each, a whole, in different senses. "Rational" and "animal" constitute "man;" so that, *in reality*, the Species contains the Genus [*i. e.* implies it;] and when the Genus is called a *whole*, and is said to *contain* the Species, this is only a *metaphorical* expression, signifying that it *comprehends* the Species in its own more *extensive* signification. If for instance I predicate the term "animal" of an individual man, as Alexander, I speak truth indeed, but only such a *portion* of the truth that I might equally predicate the same term of his horse Bucephalus. If I predicate the terms "Man" and "Horse" of Alexander and of Bucephalus respectively, I use a more full and *complete* expression for each than the term "animal;" and this last is accordingly the more *extensive*, as it contains, [or, more properly speaking, comprehends] and may be applied to, several different Species; *viz.*: "bird," "beast," "fish, &c.

In the same manner the name of a *species* is a more *extensive* [*i. e.* comprehensive] but less *full and complete* term than that of an *individual* (*viz.* a Singular-term;) since the Species may be predicated of each of these.

"The impression produced on the mind by a Singular Term, may be compared to the distinct view taken in by the eye, of any object (suppose some particular man) near at hand, in a clear light, which enables us to distinguish the features of the *individual*: in a fainter light, or rather further off, we merely perceive that the object is a *man*: this corresponds with the idea conveyed by the name of the Species: yet farther off or in a still feebler light, we can distinguish merely some *living object*; and at length, merely *some object*; these views corresponding respectively with the terms denoting the Genera, less or more remote.*

Hence it is plain that when logicians speak of "Species" as "expressing the whole essence of its subjects," this is not strictly correct, unless we understand by the "whole essence" the "whole that any *common-term* can express;"—the "nearest approach to the whole essence of the indivi-

* Rhet. Part III. Chap. II. §1.

dual that any term (not synonymous with the Subject) can denote." No predicate can express, strictly, the *whole* essence of its Subject, unless it be merely another name, of the very same import, and co-extensive with it; as "Cæsar was the conqueror of Pompey."

But when logicians speak of Species as a "whole," this is, properly, in reference to the Genus and the Difference; each of which denotes a "part" of that Species which we constitute by joining those two together. But then, it should be remembered that a Species is not a *predicable* in respect of its Genus and Difference (since it cannot be predicated of *them*) but only in respect of the Individuals, or lower Species, of which can be predicated.

§4.

A Species then, it is plain, when predicated of individuals, stands in the same relation to *them*, as the Genus to the Species; and when predicated of other (lower) Species, it is then, in respect of these, a Genus, while it is a Species in respect of a higher Genus; as "quadruped," which is a species of "animal," is a Genus in respect of "horse;" which latter again may be predicated of Bucephalus and of other individuals. Such a term is called a *subaltern* Species or Genus; being each, in respect of different other terms, respectively.

A Genus that is *not* considered as a *species* of any thing, is called Highest Genus and *summum* (the highest) Genus; a Species that is *not* lowest Species. considered as a *genus* of any thing,—*i.e.* is regarded as containing under it only *individuals*,—is called *infima* (the lowest) Species.

When I say of a Magnet, that it is "a kind of *iron-ore*," that is called its *proximum*-genus, because it is the closest [or lowest] genus that is predicated of it: "mineral" is its more *remote* genus.

When I say that the Differentia of a magnet is its "*attracting iron*," and that its Property is "*polarity*," these are called respectively a Specific Difference and Property; because magnet is [I have supposed] an *infima species* [*i.e.* only a species.]

When I say that the Differentia of iron ore is its "*containing iron*," and its Property, *being attracted by the magnet*," these are called respectively, a *generic* Difference and property, because "iron-ore" is a *subaltern* Species or Genus; being both the *genus* of *magnet*, a *species* of *mineral*.

It should be observed here, that when logicians speak of Property and Accident as predicables expressing, not the Essence or part of the Essence of a subject, but something *united* to the Essence this must be understood as having reference not to the nature of things as they are in themselves, but to our conceptions of them. "Polarity" for instance is as much a part of the real nature of the substance we call "Magnet," as its "attraction of iron;" and again a certain shape, colour, or specific gravity, as much belongs in reality to *those magnets which are of that description*, as

either polarity, or attraction. But our modes of conceiving and of expressing our conceptions, have reference to the relations in which objects stand to our own minds; and are influenced in each instance by the *particular end we have in view*. That, accordingly, is accounted a part of the Essence of any thing, which is essential to the *notion of it formed in our minds*. Thus, if we have annexed such a notion to the term, Man, that "rationality" stands prominent in our minds, in distinguishing Man from other Animals, we call this, the "Difference," and a part of the "Essence" of the term Man; though "risibility" be an attribute which does not less really belong to Man. So, the *primary* and prominent distinction in our minds of a Triangle from other plane rectilinear Figures, is its having three sides; though the equality of its three angles to two right angles, be, in reality, no less essential to a triangle. But that this last is the fact, is demonstrated to the learner not till long after he is supposed to have become familiar with the notion of a Triangle.

Hence, in different sciences or arts, different attributes are fixed on, as essentially characterising each species, according as this or that is the most important in reference to the matter we are engaged in. In Navigation, for instance, the *polarity* of the Magnet is the essential quality; since if there could be any other substance which could possess this, without attracting iron, it would answer the same purpose: but to those manufacturers who employ Magnets for the purpose of more expeditiously picking up small bits of iron and for shielding their faces from the noxious steel-dust, in the grinding of needles, the *attracting* power of the magnet is the essential point.

That is most properly called an "Accident," which may be absent or present, the essence of the Species continuing the same; as for a man to be "*walking*," or a "*native of Paris*." Of these two examples, the former is what logicians call a *separable* Accident, because it may be separated from the *individual*: (e. g. he may sit down;) the latter is an *inseparable* Accident, being not separable from the individual, (i. e. he who is a native of Paris can never be otherwise;) "from the individual," I say, because *every accident* must be separable from the *species*, else it would be a *property*.*

This seems to me a clearer and more correct description of the two kinds of Accident than the one given by Aldrich; viz. that a Separable-Accident may be *actually* separated, and an Inseparable, only *in thought*, "ut Mantuanum esse, Virgilio." For surely "to be author of the *Æneid*" was another Inseparable-Accident of the same individual: "to be a Roman citizen" another; and "to live in the days of Augustus" another; now can we *in thought* separate all these things from the essence of *that individual*? To do so would be to form the idea of a *different* individual. We can

*In the Portuguese language there are two words, "ser" and "estar," both answering to the English "to be;" and foreigners, I have been told, are often perplexed about the proper use of each. I soon found, however, that the rule is a logical one, easily remembered: "estar" furnishes copula when the predicate is a *separable accident*, and "ser" in *all other cases*. E. G. "*Estar* in Inghilterra" is "to be in England;" "*Ser* Inglez" is "to be an Englishman;" "Quem e?" "Quem esta la?" "who is there?" &c.

indeed conceive a *man*, and one who might chance to bear the *name* of Virgil without any of these Accidents; but then it would plainly not be the *same* man. But Virgil, whether sitting or standing, &c., we regard as the same man; the abstract notion which we have formed of that individual being unaltered by the absence or presence of these separable accidents. (See above, §2.)

Let it here be observed, that both the general name "Predicable," and each of the classes of Predicables, (*viz.* Genus, Species, &c.) are *relative*; *i.e.* we cannot say *what predicable* any term is, or whether it is any at all, unless it be specified of *what* it is to be predicated: *e.g.* the term "red" would be considered a *genus*, in relation to the terms "pink," "scarlet," &c.: it might be regarded as the *differentia*, in relation to "red rose;"—as a *property* of "blood,"—as an *accident* of "a house," &c. And in all case accordingly, in Differences or Properties will be *Accidents* in reference to the class they come under. *E.G.* "malleability is an "accident" in reference to the term "metal;" but it is a "property" of gold and most other metals; as the absence of it,—brittleness,—is of Antimony and Arsenic, and several others, formerly called Semi-metals.

And universally, it is to be steadily kept in mind, that no "common-terms" have, as the name of Individuals ["singular-terms"] have, any *real thing existing in nature* corresponding to each of them, but that each of them is merely a sign denoting a certain *inadequate notion* which our minds have formed of an Individual, and which consequently, not including the notion of "individuality" [*numerical* unity] nor any thing wherein that individual differs from certain others, is applicable equally well to all, or any of them. Thus "man" denotes no real thing (as the sect of the Realists maintained) distinct from each individual, but merely *any* man, viewed *inadequately*, *i.e.* so as to omit and abstract from, all that is peculiar to each individual; by which means the term becomes applicable alike to any one of several individuals, or (in the plural) to several together.

The *unity* [*singleness*] or *sameness* of what is denoted by a common-term, does not, as in the case of a *singular* term, consist in the *object itself* being (in the *primary* sense) *one* and the same, but in the oneness of the *Sign* itself; which is like a Stamp (for marking bales of goods, or cattle,) that impresses on each a *similar* mark; called, thence, in the *secondary* sense, *one and the same* mark. And just such a *stamp*, to the mind, is a common-term; which being, itself, one, conveys to each of an indefinite number of minds an impression precisely *similar*, and thence called,—in the transferred sense, *one and the same* Idea.

And we arbitrarily fix on the circumstance which we in each instance choose to abstract and consider separately, disregarding all the rest; so that the same individual may thus be referred to any of several different Species, and the same Species, to several Genera, as suits our purpose. Thus, it suits the Farmer's purpose to class his cattle with his ploughs, carts,

Different
modes of clas-
sification.

and other possessions, under the name of "*stock*," the Naturalist, suitably to *his* purpose, classes them as "*quadrupeds*," which term would include wolves, deer, &c., which to the farmer would be a most improper classification: the commissary, again, would class them with corn, cheese, fish, &c., as "*provision*;" that which is most essential in one view, being subordinate in another.

§5.

An *individual* is so called because it is incapable of *logical Division*; which is a metaphorical expression, to signify "the distinct [*i.e.* separate] enumeration of several things signified by one common name."

This operation is directly opposite to *generalization*, (which is performed by means of "Abstraction;") for as, in that, you *lay aside* the differences by which several things are distinguished, so as to call them all by one *common name*, so, in Division, you *add on* the Differences, so as to enumerate them by their *several distinct* names. Thus, "*mineral*" is said to be divided into "stones, metals," &c.; and metals again into "gold, iron," &c.; and these are all the Parts [or numbers] of the division.

"Division," in its primary sense, means separating from each other (either actually, or in enumeration) the parts of which some really-existing single object consists: as when you divide "an animal" (that is, any single animal) into its several members; or again, into its "bones, muscles, nerves, blood-vessels," &c. And so with any single Vegetable, &c.

Now, each of the *parts* into which you thus "physically" (as it is called) divide "an animal," is strictly and properly a "part," and is *really* less than the whole: for you could not say of a bone, for instance, or of a limb, that it is "an Animal."

But when you "divide"—in the secondary sense of the word (or, as it is called, "metaphysically")—"Animal," that is, the *Genus* "Animal," into Beast, Bird, Fish, Reptile, Insect, &c. each of the *parts* [or "members,"] is metaphorically called a "part," and is, in another sense, *more* than the whole [the Genus] that is thus divided. For you may say of a Beast or Bird that it is an "Animal;" and the term "Beast" implies not only the term "Animal," but something more beside; namely, whatever "Difference" characterizes "Beast," and separates it from "Bird," "Fish," &c.

And so also any Singular-term [denoting one individual] implies not only the whole of what is understood by the Species it belongs to, but also more: namely whatever distinguishes that single object from others of the same Species: as "London" implies all that is denoted by the term "City," and also all that distinguishes that individual-city.

The "parts" ["members"] in that figurative sense with which we are now occupied, are each of them *less than the whole*, in another sense; that is, of *less comprehensive* signification. Thus, the Singular-term "Romulus" embracing only an individual-king, is *less extensive* than the Species "King;" and that, again, less extensive than the Genus "Magistrate," &c.

An "Individual" then is so called from its being *incapable of being* (in this figurative sense) *divided*.

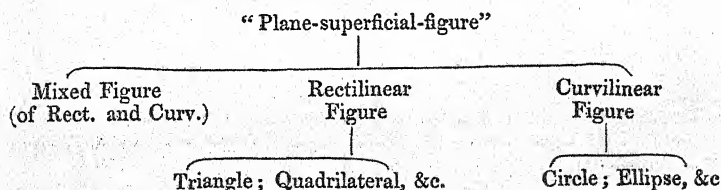
And though the two senses of the word "Division" are easily distinguishable when explained, it is so commonly employed in each sense, that through inattention, confusion often ensues.

We speak as familiarly of the "division" of Mankind into the several races of "Europeans, Tartars, Hindoos, Negroes," &c. as of the "division" of the Earth into "Europe, Asia, Africa," &c. though "the Earth, [or "the World"] is a Singular-term, and denotes what we call *one individual*. And it is plain we could not say of Europe, for instance, or of Asia, that it is "a World." But we can predicate "Man" of every individual European, Hindoo, &c.

And here observe that there is a common colloquial incorrectness (increasing the liability to confusion) in the use of the word "division," in each of these cases, to denote *one of the "parts,"* into which the whole is divided. Thus you will sometimes hear a person speak of Europe as one "division" of the Earth; or of such and such a "division" of an Army: meaning "*portion*." And so again a person will sometimes speak of "animals that belong to the *feline division* of the Carnivora" [flesh-eating-animals] meaning, that *portion of the class* "Carnivora."

It is usual when a long and complex course of Division is to be stated to draw it out, for the sake of clearness and brevity, in a Schemes of form like that of a genealogical "*Tree*."* And by carefully examining any specimen of such a "*Tree*" (going over it repeatedly, and comparing each portion of it with the explanation above given) you will be able perfectly to fix in your mind the technical terms we have been explaining.

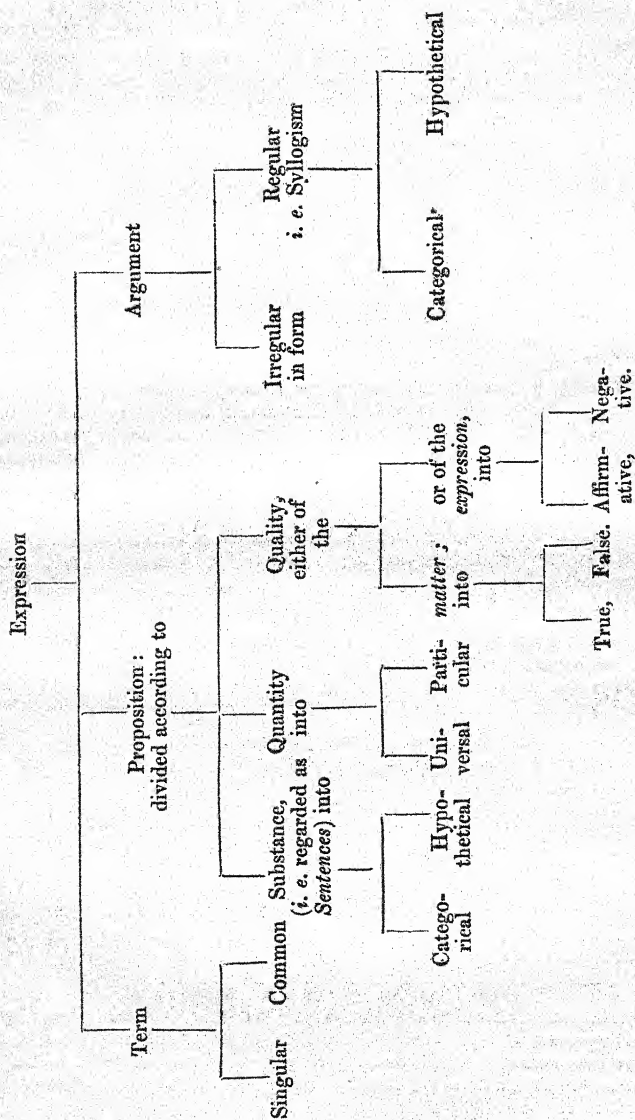
Take for instance as a "Summun-genus" the mathematical-term



Such a "Tree of Division" the Student may easily fill up for himself. And the employment of such a form will be found exceedingly useful in obtaining clear views in any study you are engaged in.

For instance, in the one we have been now occupied with, take for a Summun-Genus, "Expression;" (*i. e.* "expression-in-language" of any such mental-operation as those formerly noticed) you may then exhibit, thus, the division and subdivision of—

*See the Division of Fallacies, Book III. §4.



The rules ordinarily given for Division are three: 1st. each of the Ordinary Parts, or any of them short of *all* must contain *less* (i.e. have a narrower signification) than the thing divided. 2nd. All the rules for Parts together must be exactly equal to the thing divided; therefore we must be careful to ascertain that the *summum genus* may be predicated of *every* term placed under it, and of nothing *else*. 3d. The Parts or Members must be *opposed* [contradistinguished] i.e. must not be contained in one another: e.g. if you were to divide "book" into "poetical, historical, folio, quarto, french, latin," &c. the members would be contained in each other; for a french book may be a quarto, or octavo, and a quarto, french, english, &c. &c. You must be careful, therefore, to keep in mind the *principle of division* with which you set out: e.g. whether you begin dividing books according to their *matter*, their *language*, or their *size*, &c. all these being so many *cross-divisions*. And Cross-divisions. when any thing is capable (as in the above instance) of being divided in several different ways, we are not to reckon one of these as the true, or real, or *right* one, without specifying what the object is which we have in view: for one mode of dividing may be the most suitable for one purpose, and another for another: as e. g. one of the above modes of dividing books would be the most suitable to a book-binder; another in a philosophical, and the other in a philological view.

It is a useful practical rule, whenever you find a discussion of any subject very perplexing, and seemingly confused, to examine whether some "Cross-division" has not crept in unobserved. For this is very apt to take place; (though of course such a *glaring* instance as that in the above example could not occur in practice) and there is no more fruitful source of indistinctness and confusion of thought.

When you have occasion to divide any thing in several different ways,—that is, "on several principles-of-division"—you should take care to state distinctly *how many* divisions you are making, and on what principle each proceeds.

For instance, in the "Tree" above given, it is stated, that "Propositions" are divided in different ways, "according to" this and that, &c. And thus the perplexity of Cross-division is avoided.

A Division should be *clearly arranged* as to its Members: that is, there should be as much *subdivision* as the occasion may require; and not a mere catalogue of the "lowest-species, omitting *intermediate* classes ["*subaltern*"] between these and the "highest-genus;" nor again an intermixture of the subaltern," and "lowest-species," so as to have in any two branches of the division, Species contradistinguished and placed opposite, of which the one ought naturally to be placed *higher up* [nearer the "*Summum*"] and the other, *lower down* in the Tree.

For instance, to divide "plane-figure" at once, into "equilateral triangles, squares, circles, ellipses," &c., or again "vegetable," into "Elms, pear-trees, turnips, mushrooms," &c., or again to divide "Animal" into "Birds, Fishes, Reptiles, Horses, Lions," &c. would be a transgression of this rule.

And observe that, (as has been formerly remarked) although such *glaring* cases as are given by way of examples could not occur in practice, errors

precisely corresponding to them, may, and often do occur; and produce much confusion of thought and error.

§6.

Definition is another metaphorical word, which literally signifies, "laying down a boundary;" and is used in Logic to signify "an expression which explains any term, so as to *separate* it from every thing else," as a boundary separates fields.

In reference to the several modes adopted for furnishing such explanation, Logicians distinguish [divide] Definitions into *essential* and *accidental*. They call that an "*essential-definition*" which states what are regarded as the "constituent parts of the essence" of that which is to be defined; "*accidental-definition*" [or *Description*] one which lays down what are regarded as "circumstances belonging to it;" viz. Properties or Accidents; such as causes, effects, &c.

Accidents in the narrowest sense, (as defined above, § 3) cannot, it is plain, be employed in a Description [accidental-definition] of any *Species*; since no Accident (in that sense) can belong to the *whole* of a *Species*, nor consequently furnish an adequate Definition thereof.

In the "description" of an *individual*, on the contrary, we employ, not *Properties*, (which as they do belong to the whole of a *Species*, cannot serve to distinguish one individual of that *Species* from another) but Accidents—generally, *inseparable* Sp.

ble-accidents—in conjunction with the *Species*: as "Philip was a king of Macedonia, who subdued Greece;" "Britain is an Island, situated so and so," &c.

The *Essential-definition* again is divided into *physical* [natural] and *Physical logical* [metaphysical] definition: the physical-definition being made by an enumeration of such parts as are *actually* separable,—such as are the hull, masts, &c. of a "Ship; —the root, trunk, branches, bark &c. of a "Tree;" the Subject, Predicate, and Copula of a "Proposition."

The "*logical-definition*" consists of the "Genus" and "Difference;" which are called by some writers the "metaphysical" [ideal] parts; as being not two real parts into which an *individual-object* can (as in the former case) be actually divided, but only different views taken [notions formed] of a *class* of objects, by one mind.

Genus.

E. G. "A Proposition" would be defined, logically "a sentence Difference. G.

affirming-or-denying:" A "Magnet" "an Iron-ore having attraction for D. G.

iron;" a "Square," a "Rectangle" [right-angled parallelogram] having D. equal sides.

It is to be observed that the word "*Definition*" is sometimes used to denote the *whole sentence*, in which the term defined is conjoined with the explanation given of it; as when we say, "a triangle is a three-sided-figure:" sometimes it is used to signify merely *that which gives* the explanation; as when we say "three-sided figure" is *the definition* of "triangle."

The Rules or Cautions usually laid down by Logical writers for framing Rules for definition. a Definition, are very obvious: *viz.* 1st. The definition must be *adequate*; *i. e.* neither too extensive nor too narrow for the thing defined; *e. g.* to define "fish," "an animal that lives in the water," would be too *extensive*, because many insects, &c. live in the water; to define it, "an animal that has an air-bladder," would be too *narrow*; because many fish are without any. Or again, if in a definition of "Money" you should specify its being "made of metal," that would be too *narrow*, as excluding the *shells* used as money in some parts of Africa: if again you define it as an "article of value given in exchange for something else," that would be too *wide*, as it would include things exchanged by *barter*; as when a shoemaker who wants coals, makes an exchange with a collier who wants shoes.

2d. The Definition must be in itself plainer than the thing defined, else it would not *explain it*: I say, "in itself," (*i. e.* generally) because, to some particular person, the term defined may happen to be even more familiar and better understood, than the language of the Definition.

And this rule may be considered as including that which is usually given by Logicians as a third rule; *viz.* that a Definition should be couched in a *convenient number of appropriate words* (if such can be found suitable for the purpose): since *figurative words* (which are opposed to appropriate) are apt to produce ambiguity or indistinctness; too great *brevity* may occasion *obscurity*; and too great *prolixity*, *confusion*. But this perhaps is rather an admonition with respect to Style, than a strictly logical rule; nor can we accordingly determine with precision, in each case, whether it has been complied with or not; there is no drawing the line between "too long" and "too concise," &c. Nor would a definition unnecessarily prolix be censured as *incorrect*, but as *inelegant*, inconvenient, &c.

Tautology. If however, a definition be chargeable with *Tautology*, (which is a distinct fault from prolixity or verbosity) it may justly be called *incorrect*, though without offending against the first two rules. Tautology consists in inserting too much, not in mere *words*, but in *sense*; yet not so as too much to narrow the definition (in opposition to Rule 1.) by excluding some things which belong to the class of the thing defined; but only, so as to state something which has been *already implied*. Thus, to define a Parallelogram "a four-sided figure whose opposite sides are parallel and equal," would be tautological; because, though it is *true* that such a figure, and such alone, is a parallelogram, the *equality* of the sides is implied in their being *parallel*, and may be proved from it. Now the insertion of the words "and equal," leaves, and indeed leads, a reader to suppose that there may be a four-sided figure whose opposite sides are parallel but *not* equal. Though therefore such a definition asserts nothing false, it leads to a supposition of what is false; and consequently is to be regarded as an incorrect definition.

The inference just mentioned,—viz. : that you implied that a quadrangle might have its opposite sides parallel, and *not* equal,—would be drawn from such a definition, according to the principle of “*exceptio probat regulam*,” *an exception proves a rule*. The force of the maxim (which is not properly confined to the case of an *exception*, strictly so called) is this; that “the mention of any circumstance introduced into the statement either of a definition, or of a precept, law, remark, &c. is to be presumed *necessary* to be inserted; so that the precept, &c. would *not hold good* if this circumstance were absent.” In short, the word “*only*,” or some such expression, is supposed to be understood. If *e. g.* it be laid down that he who breaks into an *empty* house shall receive a certain punishment, it would be inferred that this punishment would not be incurred by breaking into an *occupied* house: if it were told us that some celestial phenomenon could not be seen *by the naked eye*, it would be inferred that it would or might be visible through a *telescope*, &c.

And much is often inferred in this manner, which was by no means in the Author's mind; from his having inaccurately inserted what chanced to be present to his thoughts. Thus, he who says that it is a crime for people to violate the property of a *humane* Landlord who *lives among them*, may perhaps not mean to imply that it is no crime to violate the property of an absentee-landlord, or of one who is not humane: but he leaves an opening for being so understood. Thus again, in saying that “an animal which breathes through gills and *is scaly*, is a fish,” though nothing false is asserted, a presumption is afforded that you mean to give a definition such as would be too *narrow*, in violation of Rule 1.

And *Tautology*, as above described, is sure to mislead any one who interprets what is said, conformably to the maxim that “an exception proves a rule.”

It often happens that one or more of the above rules is violated through men's proneness to introduce into their definitions, Accidental circumstances mistaken for essential. along with, or instead of, *essential* circumstances, such as are, in the strict sense, *accidental*. I mean, that the notion they attach to each term, and the explanation they would give of it, shall embrace some circumstances, *generally, but not always*, connected with the thing they are speaking of: and which might, accordingly, (by the strict account of an “Accident”) be “absent or present, the essential character of the subject remaining the same.” A definition framed from such circumstances, though of course incorrect, and likely at some time or other to mislead us, will not unfrequently obtain reception, from its answering the purpose of a correct one, at a particular time and place.

“For instance, the Latin word *Meridies*, to denote the *southern* quarter, is etymologically suitable (and so would be a definition founded on that etymology) in our *hemisphere*; while, in the other, it would be found just the reverse. Or if any one should define the North Pole, that which is ‘inclined towards the sun,’ this would, *for half the year*, answer the purpose of a correct definition; and would be the *opposite* of the truth for the other half.

“Such glaring instances as these, which are never likely to occur in

practice, serve best perhaps to illustrate the character of such mistakes as do occur. A specimen of that introduction of accidental circumstances which I have been describing, may be found, I think, in the language of a great number of writers, respecting Wealth and Value; who have usually made *labour* an essential ingredient in their definitions. Now it is true, *it so happens*, by the appointment of Providence, that valuable articles are in *almost* all instances obtained by Labour; but still, this is an accidental, not an essential circumstance. If the aerolites which occasionally fall, were diamonds and pearls, and if these articles could be obtained in no other way, but were casually picked up, to the same amount as is now obtained by digging and diving, they would be of precisely the same value as now. In this, as in many other points in Political Economy, men are prone to confound *cause* and *effect*. It is not that pearls fetch a high price *because* men have dived for them; but, on the contrary, men dive for them because they fetch a high price.”*

* Pol. Econ. Lect. IX. pp. 251—253.

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## BOOK III.

### OF FALLACIES.

#### *Introduction.*

ALTHOUGH sundry instances of Fallacies have been from time to time noticed in the foregoing Books, it will be worth while to devote a more particular attention to the subject.

By a Fallacy is commonly understood, "any unsound Definition of mode of arguing, which appears to demand our Fallacy. conviction, and to be decisive of the question in hand, when in fairness it is not." Considering the ready detection and clear exposure of Fallacies to be both more extensively important, and also more difficult, than many are aware of, I propose to take a Logical view of the subject; referring the different Fallacies to the most convenient heads, and giving a scientific analysis of the procedure which takes place in each.

After all, indeed, in the practical detection of each individual Fallacy, much must depend on natural and acquired acuteness; nor can any rules be given, the mere learning of which will enable us to *apply* them with mechanical certainty and readiness: but still we shall find that to take correct general views of the subject, and to be familiarized with scientific discussions of it, will tend, above all things, to *engender such a habit of mind* as will best fit us for practice.

The rules already given enable us to develop the principles on which all reasoning is conducted, what Mistakes as to the office of Logic. ever be the Subject-matter of it, and to ascertain the validity or fallaciousness of any apparent argument, as far as the *form of expression* is concerned; that being alone the proper province of Logic.

But it is evident that we may nevertheless remain liable to be deceived or perplexed in Argument by the assumption of *false or doubtful Premises*, or by the employment of *indistinct or ambiguous Terms*; and, accordingly, many Logical writers, wishing to make their systems appear as perfect as possible, have undertaken to give rules "for attaining clear ideas," and for "guiding the judgment;" and fancying or professing themselves successful in this, have consistently enough denominated Logic, the "Art of using the Reason;" which in truth it would be, and would nearly supersede all other studies, if it could of itself ascertain the *meaning* of every *Term*, and the *truth or falsity* of every *Proposition*; in the same manner as it actually can, the *validity* of every *Argument*. And they have been led into this, partly by the consideration that Logic is concerned about the "three Operations" of the mind—simple Apprehension, Judgment, and Reasoning; not observing that it is not *equally* concerned about all: the last Operation being alone its appropriate province; and the rest being treated of only in reference to that.

The contempt justly due to such pretensions has most unjustly fallen on the Science itself; much Discredit brought upon Logic. in the same manner as Chemistry was brought into disrepute among the unthinking, by the extravagant pretensions of the Alchemists. And those Logical writers have been censured, not (as they should have been) for *making* such professions, but for *not fulfilling* them. It has been objected, especially, that the rules of Logic leave us

still at a loss as to the most important and difficult point in reasoning; *viz.* the ascertaining the sense of the terms employed, and removing their ambiguity: a complaint resembling that made (according to a story told by Warburton,\* and before alluded to) by a man who found fault with all the reading-glasses presented to him by the shopkeeper; the fact being that he had never *learnt to read*. In the present case, the complaint is the more unreasonable, inasmuch as there neither is, nor ever *can possibly be*, any such system devised as will effect the proposed object of clearing up the ambiguity of Terms. It is, however, no small advantage, that the rules of Logic, though they cannot, alone, ascertain and clear up ambiguity in any Term, yet do point out in *which* Term of an argument it is to be sought for: directing our attention to the *middle*-Term, as the one on the ambiguity of which a Fallacy is likely to be built.

It will be useful, however, to class and describe the different kinds of ambiguity which are to be met with; and also the various ways in which the insertion of false, or, at least, unduly assumed, Premises, is most likely to elude observation. And though the remarks which will be offered on these points may not be considered as strictly forming a point of Logic, they cannot be thought out of place, when it is considered how essentially they are connected with the *application* of it.

### § 1.

The division of Fallacies into those in the words (IN Division of DICTIONE,) and those in the MATTER (EX-Fallacies. TRA DITIONEM) has not been, by any writers hitherto, grounded on any distinct principle: at least, not on any that they have themselves adhered to. The confounding together, however, of these two classes is highly de-

\* In his *Div. Leg.*

trimental to all clear notions concerning Logic ; being obviously allied to the prevailing erroneous views which make Logic the *art of employing the intellectual faculties in general*, having the *discovery of truth* for its object, and all kinds of knowledge for its proper subject-matter ; with all that train of vague and groundless speculations which have led to such interminable confusion and mistakes, and afforded a pretext for such clamorous censures.

It is important, therefore, that rules should be given for a division of Fallacies into Logical and Non-logical, on such a principle as shall keep clear of all this indistinctness and perplexity.

If any one should object, that the division about to be adopted is in some degree arbitrary, placing under the one head, Fallacies which many might be disposed to place under the other, let him consider not only the indistinctness of all former divisions, but the utter impossibility of framing *any* that shall be completely secure from the objection urged, in a case where men have formed such various and vague notions from the very want of some clear principle of division. Nay, from the elliptical form in which all reasoning is usually expressed, and the peculiarly involved and oblique form in which Fallacy is for the most part conveyed, it must of course be often a matter of doubt, or rather, of arbitrary *choice*, not only to which genus each *kind* of fallacy should be referred, but even to which kind to refer any *one individual* Fallacy.

Indeterminate character of Fallacies.

For, since, in any Argument, one Premiss, is usually suppressed, it frequently happens, in the case of a Fallacy, that the hearers are left to the alternative of supplying *either* a Premiss which is *not true*, or *else*, one which *does not prove* the Conclusion. *E. G.* If a man expatiates on the distress of the country, and thence argues that the government is tyrannical, we must suppose

him to assume *either* that "every distressed country is under a tyranny," which is a manifest falsehood, *or*, merely that "every country under a tyranny is distressed," which, however true, proves nothing, the Middle-term being undistributed.\* Now, in the former case, the Fallacy would be referred to the head of "extra dictionem;" in the latter to that of "in dictione." Which are we to suppose the speaker meant us to understand? Surely just whichever each of his hearers might happen to prefer: some might assent to the false Premiss; others, allow the unsound Syllogism; to the Sophist himself it is indifferent, as long as they can but be brought to admit the Conclusion.

Without pretending, then, to conform to every one's mode of speaking on the subject, or to lay down rules which shall be in themselves (without any call for labour or skill in the person who employs them) readily applicable to, and decisive on, each individual case, I shall propose a division which is at least perfectly clear in its main principle, and coincides perhaps, as nearly as possible, with the established notions of Logicians on the subject.

## § 2.

In every Fallacy, the Conclusion either *does* or *does not* Logical *follow from the Premises*. Where the Conclusion does not follow from the Premises, it is manifest that the fault is in the *Reasoning*, and in that alone; these, therefore, we call Logical Fallacies,† as being, properly, violations of those rules of reasoning which it is the province of Logic to lay down.

Of these, however, one kind are more *purely Logical*, as exhi-

\* In the logic of the Nyāya the suppressed premiss is always assumed to be that which, if granted, would establish the conclusion. See *Tarka-sangraha*, §66, a.

† In the same manner as we call that a *criminal* court in which crimes are *judged*.

liting their fallaciousness by the bare *form* of the expression, without any regard to the meaning of the Terms: to which class belong: 1st. Undistributed Middle; 2d. Illicit Process; 3d. Negative Premises, or Affirmative Conclusion from a Negative Premiss and *vice versa*: to which may be added 4th those which have palpably (*i. e. expressed*) more than three Terms.

The other kind may be most properly called *semi-logical* Semi-Logical Fallacies. *viz.* all the cases of ambiguous middle-Term except its non-distribution: for though in such cases the conclusion does not follow, and though the rules of Logic show that it does not, *as soon as the ambiguity of the middle-Term is ascertained*, yet the discovery and ascertainment of this ambiguity requires attention to the *sense of the Term*, and knowledge of the Subject-matter: so that here, Logic teaches us not *how to find* the Fallacy, but only *where to search* for it, and on what principles to condemn it.

Accordingly it has been made a subject of bitter complaint against Logic, that it presupposes the most difficult point to be already accomplished, *viz.* the sense of the Terms to be ascertained. A similar objection might be urged against every other art in existence; *e. g.* against Agriculture, that all the precepts for cultivation of land presuppose the possession of a farm; or against Perspective, that its rules are useless to a blind man. The objection is indeed peculiarly absurd when urged against Logic, because the object which it is blamed for not accomplishing *cannot* possibly be within the province of *any one* art whatever. Is it indeed possible or conceivable that there should be any method, science, or system, that should enable one to know the full and exact meaning of every term in existence? The utmost that can be done is to give some general rules that may assist us in this work; which is done in the first two chapters of Book II.\*

|                                                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Familiarity with a term distinct from clear apprehension of its meaning. | Nothing perhaps tends more to conceal from men their imperfect conception of the meaning of a term, than the circumstance of their being able fully to comprehend a <i>process of reasoning</i> in which it is involved, without attaching any distinct meaning at all to that term; as is evident when X Y Z are used to stand for Terms, in a regular Syllogism. Thus a man may be <i>familiarized</i> with a term, and never find himself <i>at a loss</i> from not comprehending it; from |
|--------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

\* The very author of the objection says, "This (the comprehension of

which he will be very likely to infer that he *does* comprehend it, when perhaps he does not, but employ it vaguely and incorrectly; which leads to fallacious Reasoning and confusion. It must be owned, however, that many Logical writers have, in great measure, brought on themselves the reproach in question, by calling Logic "the right use of Reason," laying down "rules for gaining clear ideas," and such-like *ἀναζωεῖα*, as Aristotle calls it.

## §3.

The remaining class (*viz.* where the Conclusion does follow from the Premises) may be called the Material, or Non-logical Fallacies: of these there are two kinds;\* 1st. when the Premises are such as ought not to have been assumed; 2d. when the conclusion is not the one required, but irrelevant; which Fallacy is commonly called "*ignoratio elenchi*, because your Argument is not the "elenchus" (*i. e.* proof of the *contradictory*) of your opponent's assertion, which it should be; but proves, instead of that, some other proposition resembling it. Hence, since Logic defines what Contradiction is, some may choose rather to range this with the *Logical* Fallacies, as it seems, so far, to come under the jurisdiction of that Art. Nevertheless, it is perhaps better to adhere to the original division, both on account of its clearness, and also because few would be inclined to apply to the Fallacy in question the accusation of being *inconclusive*, and consequently "illogical" reasoning; besides which, it seems an artificial and circuitous way of speaking, to suppose in all cases an *opponent* and a *contradiction*; the simple statement of the matter being this,—I am required, by the circumstances of the case, (no matter why) to prove a certain Conclusion; I prove, not that, but one which is likely to be mistaken for it;—in this lies the Fallacy.

the meaning of the general Terms) is a study which every individual must carry on for himself; and of which no rules of Logic (how useful soever they may be in directing our labours) can supersede the necessity." D. Stewart, *Phil.* Vol. II. Chap. II. s. 2.

\* For it is manifest that the fault, if there be any, must be either 1st. in the *Premises*, or 2dly. in the *Conclusion*, or 3dly. in the *Connexion* between them.

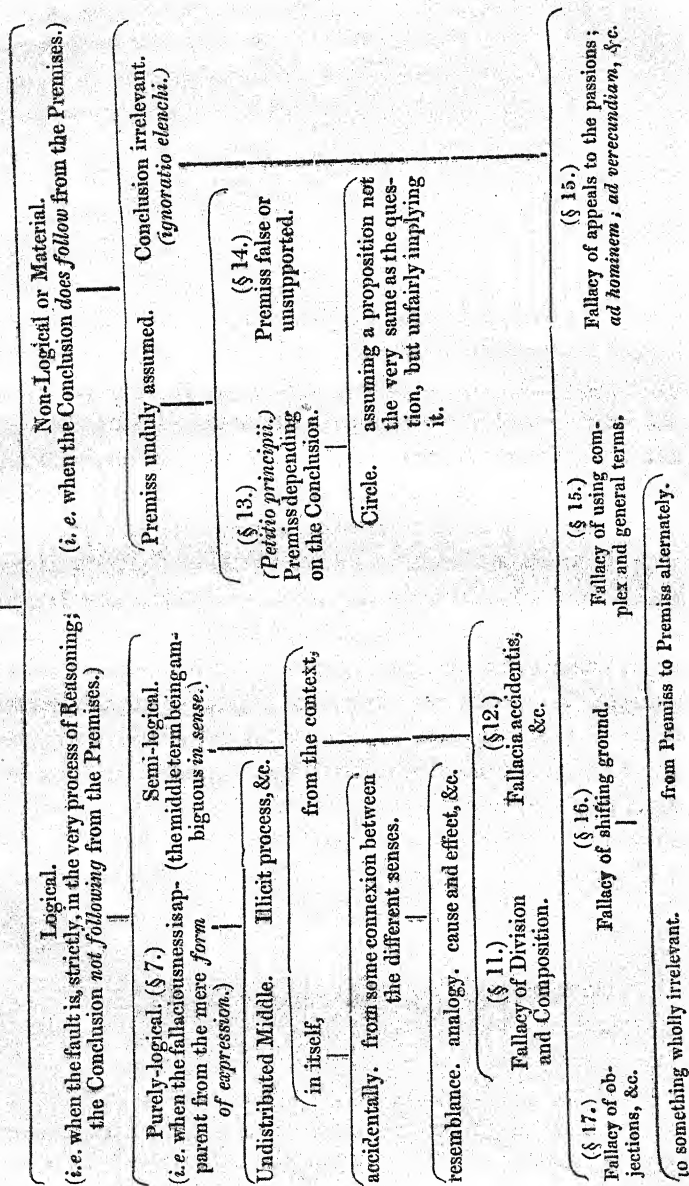
It might be desirable therefore to lay aside the name of Ignoratio elenchi "*ignoratio elenchi*," but that it is so generally adopted as to require some mention to be made of it. The other kind of Fallacies in the Matter will comprehend (as far as the vague and obscure language of Logical writers will allow us to conjecture) the fallacy of "*non causa pro causa*," and that of "*petitio principii*." Of these, the former is by them distinguished into "*a non vera pro vera*," and "*a non tali pro tali*;" this last would appear to mean arguing from a case *not parallel* as if it *were* so; which, in Logical language, is, having the *suppressed* Premiss false; for it is in *that* the *parallelism* is affirmed; and the "*non vera pro vera*" will in like manner signify the *expressed* Premiss being false; so that this Fallacy will turn out to be, in plain terms, neither more nor less than falsity (or unfair assumption) of a Premiss.

The remaining kind, "*petitio principii*," ["begging the question,"] takes place when one of the Premises (whether true or false) is either plainly equivalent to the conclusion, or depends on that for its own reception. I have said "*one* of the Premises," because in all correct reasoning the *two* Premises taken together must imply and virtually assert the conclusion. It is not possible, however, to draw a precise line, *generally*, between this Fallacy and fair argument; since, to one person, that might be fair reasoning, which would be, to another, "begging the question;" inasmuch as, to the one, the Premiss might be more evident than the Conclusion; while, by the other, it would not be admitted, except as a consequence of the admission of the conclusion. The most plausible form of this Fallacy is arguing in a *circle*; and the *greater* the circle the harder to detect.

## §4.

There is no Fallacy that may not properly be included under some of the foregoing heads; ..... as in the scheme annexed:—

## Fallacies.



## § 5.

On each of the Fallacies which have been thus enumerated and distinguished, I propose to offer some more particular remarks; but before I proceed to this, it will be proper to premise two general observations, 1st. on the *importance*, and 2d. the *difficulty*, of detecting and describing Fallacies. Both have been already slightly alluded to; but it is requisite that they should here be somewhat more fully and distinctly set forth.

1st. It seems by most persons to be taken for granted that Importance of detect- a Fallacy is to be dreaded merely as a ing Fallacies. weapon fashioned and wielded by a skillful sophist; or, if they allow that a man may with honest intentions slide into one unconsciously, in the heat of *argument*, still they seem to suppose that where there is no *dispute*, there is no cause to dread Fallacy; whereas there is much danger, even in what may be called *solitary reasoning*, of sliding unawares into some Fallacy, by which one may be so far deceived as even to *act upon* the conclusion thus obtained. By "solitary reasoning" I mean the case in which one is not seeking for *arguments* to prove a *given question*, but labouring to elicit from one's previous stock of knowledge *some useful inference*.

## § 6.

2dly. The second remark is, that while sound reasoning is Difficulty of detect- ever the more readily admitted, the more ing Fallacies. clearly it is perceived to be such, Fallacy, on the contrary, being rejected as soon as perceived, will, of course, be the more likely to obtain reception, the more it is obscured and disguised by obliquity and complexity of expression. It is thus that it is the most likely either to slip accidentally from the careless reasoner, or to be brought forward deliberately by the Sophist. Not that he ever wish-

es this obscurity and complexity to be perceived ; on the contrary, it is for his purpose that the expression should *appear* as clear and simple as possible, while in reality it is the most tangled net he can contrive.

Thus, whereas it is usual to express our reasoning *elliptically*, so that a Premiss (or even two Fallacies concealed by elliptical language. or three entire steps in a course of argument) which may be readily supplied, as being perfectly obvious, shall be left to be understood, the Sophist in like manner suppresses what is *not* obvious, but is in reality the weakest part of the argument : and uses every other contrivance to withdraw our attention (his art closely resembling the juggler's) from the quarter where the fallacy lies. Hence the uncertainty before mentioned, to which class any individual Fallacy is to be referred : and hence it is that the *difficulty* of detecting and exposing Fallacy, is so much greater than that of comprehending and developing a process of sound argument. It is like the detection and apprehension of a criminal in spite of all his arts of concealment and disguise : when this is *accomplished*, and he is *brought to trial* with all the evidence of his guilt produced, his conviction and punishment are easy ; and this is precisely the case with those Fallacies which are given as examples in Logical treatises ; they are in fact already detected, by being stated in a plain and regular form, and are, as it were, only brought up to *receive sentence*. Or again, fallacious reasoning may be compared to a perplexed and entangled mass of *accounts*, which it requires much sagacity and close attention to clear up, and display in a regular and intelligible form ; though *when this is once accomplished*, the whole appears so perfectly *simple*, that the unthinking are apt to undervalue the skill and pains which have been employed upon it.

Moreover, it should be remembered, that a very *long* dis-

Fallacies  
concealed by  
lengthy dis-  
cussion.

cussion is one of the most effectual veils of Fallacy. Sophistry, like poison, is at once detected and nauseated, when presented to us in a concentrated form ; but a Fallacy which when stated barely in a few sentences, would not deceive a child, may deceive half the world, if *diluted* in a quarto volume. For, as in a calculation, one single figure incorrectly stated will enable us to arrive at any result whatever, though every other figure, and the whole of the operations, be correct, so, a single false assumption in any process of reasoning, though every other be true, will enable us to draw what conclusion we please ; and the greater the number of true assumptions, the more likely it is that the false one will pass unnoticed. But when you single out one step in the course of the reasoning, and exhibit it as a Syllogism with one Premiss true and the other false, sophistry is easily perceived. I have seen a long argument to prove that the potato is not a cheap article of food ; in which there was an elaborate, and perhaps correct, calculation of the produce per acre, of potatoes, and of wheat, —the quantity lost in barn—expense of grinding, dressing, &c., and an assumption slipped in, as it were incidentally, that *a given quantity of potatoes contains but one-tenth part of nutritive matter equal to bread* : from all which (and there is probably *but one* groundless assertion in the whole) a most triumphant result was deduced.\*

To use another illustration ; it is true in a course of argument, as in Mechanics, that “nothing is stronger than its weakest part ;” and consequently a chain which has *one* faulty link will break ; but though the number of the sound links

\* This, however, gained the undoubting assent of a Review by no means friendly to the author, and usually noted more for scepticism than for ready assent ! “All things,” says an apocryphal writer, “are double, one against another, and nothing is made in vain :” unblushing assertors of falsehood seem to have a race of easy believers provided on purpose for their use : men who will not indeed believe the best established truths of religion, but are ready to believe any thing else.

adds nothing to the *strength* of the chain, it adds much to the chance of the faulty one's *escaping observation*. In such cases as I have been alluding to, one may often hear it observed that "there is a *great deal of truth* in what such a one has said : " *i. e.* perhaps it is *all true, except one* essential point.

To speak, therefore, of all the Fallacies that have ever been enumerated as too glaring and obvious to need even being mentioned, because the simple instance given in logical treatises, and there stated in the plainest and consequently most easily detected form, are such as would (in that form) deceive no one ;—this, surely, shows extreme weakness, or else unfairness. It may readily be allowed, indeed, that to detect *individual* Fallacies, and *bring them under* the general rules, is a harder task than to *lay down* those general rules ; but this does not prove that the latter office is trifling or useless, or that it does not essentially conduce to the performance of the other. There may be more ingenuity shown in detecting and arresting a malefactor, and convicting him of the fact, than in laying down a law for the trial and punishment of such persons ; but the latter office, *i. e.* that of a legislator, is surely neither unnecessary nor trifling.

It should be added that a close observation and Logical analysis of Fallacious arguments, as it tends (according to what has been already said) to form a habit of mind well suited for the practical detection of Fallacies ; so, for that very reason, it will make us the more careful in making *allowance* for them : *i. e.* to bear in mind how much men in general are liable to be influenced by them. *E. G.* A *refuted* argument *ought* to go for *nothing*, (except where there is some ground for assuming that no *stronger* one could be adduced :) but in *fact* it will generally prove *detrimental* to the cause, from the Fallacy which will be presently explained. Now, no one is more likely to be practically aware of this, and to take precautions accordingly, than he who is most versed in the whole theory of Fallacies ; for the best Logician is the least likely to calculate on *men in general* being such.

### § 7.

#### *Of Fallacies in form,*

enough perhaps has ready been said in the preceeding Compendium : and

it has been remarked above, that it is often left to our *choice* to refer an individual Fallacy to this head or to another.

It may be worth observing, however, that to the present class we may the most conveniently refer those Fallacies, so common in practice, of supposing the Conclusion false, because the Premiss is false, or because the Argument is unsound; and of inferring the truth of the Premiss from that of the conclusion. *E. G.* If any one argues for the existence of a God from its being universally believed, a man might perhaps be able to refute the argument by producing an instance of some nation destitute of such belief; the argument *ought* then (as has been observed above) *to go for nothing*: but many would go further, and think that this refutation had *disproved* the existence of a God; in which they would be guilty of an illicit process of the Major-term: *viz.* "whatever is universally believed must be true; the existence of a God is not universally believed; therefore it is not true." Others again, from being convinced of the truth of the conclusion, would infer that of the Premises; which would amount to the Fallacy of an undistributed Middle: *viz.* "what is universally believed is true; the existence of a God is true; therefore it is universally believed."

Fallacies of this class are very much kept out of sight, being seldom perceived even by those who employ them; but Weak arguments practically detrimental. of their practical importance there can be no doubt, since it is notorious that a weak argument is always, in practice, *detrimental*; and that there is no absurdity so gross which men will not readily admit, if it appears to lead to a conclusion of which they are already convinced. Even a candid and sensible writer is not unlikely to be, by this means, misled, when he is seeking for arguments to support a conclusion which he has long been fully convinced of himself; *i. e.* he will often use such arguments as would never have convinced himself, and are not likely to convince others, but rather (by the operation of the converse Fallacy) to *confirm* in their dissent those who before disagreed with him.

It is best therefore to endeavour to put yourself in the place of an *opponent* to your own arguments, and consider whether you could not find some objection to them. The applause of *one's own party* is a very unsafe ground for judging of the real force of an argumentative work, and consequently of its real utility. To satisfy those who were doubting, and to convince those who were opposed, are much better tests; but *these* persons are seldom very loud in their applause, or very forward in bearing their testimony.

#### *Of Ambiguous Middle.*

##### § 8.

That case in which the Middle is undistributed belongs of course to the preceding head; the fault being perfectly manifest from the mere form of the expression: in that case the Extremes are compared with *two parts of the same term*; but in the Fallacy which has been called semi-logical, (which we are now to speak of) the Extremes are compared with *two different terms*, the Middle being used in two different senses in the two Premises.

And here it may be remarked, that when the argument is brought into the form of a *regular Syllogism*, the contrast between these two senses will usually appear very striking, from the two Premises being *placed together*; and hence the scorn with which many have treated the very mention of the Fallacy of Equivocation, deriving their only notion of it from the *exposure* of it in Logical treatises: whereas, in practice it is common for the two Premises to be placed very far apart, and discussed in different parts of the discourse; by which means the inattentive hearer overlooks any ambiguity that may exist in the Middle-term. Hence the advantage of Logical habits, in fixing our attention strongly and steadily on the *important* terms of an argument.

And here it should be observed, that when we mean to charge any argument with the fault of "equivocal-middle," it is not enough to say that the Middle-term is a word or phrase which *admits* of more than one meaning; (for there are few that do not) but we must show, that in order for each premiss to be admitted, the Term in question must be understood in one sense (pointing out *what* that sense is) in one of the premises, and in another sense, in the other.

And if any one speaks contemptuously of "over-exactness"

Importance of minute distinctions. in fixing the precise sense in which some term is used,—of attending to minute and subtle distinctions, &c. we may reply that these *minute* distinctions are exactly those which call for careful attention; since it is *only* through the neglect of *these* that Fallacies ever escape detection.

For, a very *glaring* and palpable equivocation could never mislead any one. To argue that "feathers dispel darkness because they are *light*," or that "this man is agreeable, because he is *riding*, and *riding* is agreeable," is an equivocation which could never be employed but in jest. And yet however slight in any case may be the distinction between the two senses of a Middle-term in the two premises, the apparent-argument will be equally inconclusive though its fallaciousness will be more likely to escape notice.

Even so, it is for want of attention to *minute* points, that houses are robbed, or set on fire. Burglars do not in general come and batter down the front-door: but climb in at some window whose fastenings have been neglected. And an incendiary, or a careless servant, does not kindle a tar-

barrel in the middle of a room, but leaves a lighted turf, or a candle-snuff, in the thatch, or in a heap of shavings.

In many cases, it is a good maxim, to "take care of little things, and great ones will take care of themselves."

#### §9.

It is to be observed, that to the head of Ambiguous middle should be referred what is called "*Fallacia plurium Interrogationum*," which may be named, simply, "the Fallacy of Interrogation;" viz. the Fallacy of asking several questions which appear to be but one; so that whatever *one* answer is given, being of course applicable to one only of the implied questions, may be interpreted as applied to the other: the refutation is, of course, to reply *separately* to each question, *i.e.* to detect the ambiguity.

King Charles II.'s celebrated inquiry—of the Royal Society may be referred to this head. He asked the cause why a dead fish does not (though a live fish does) add to the weight of a vessel of water. This implies *two* questions; the first of which many of the philosophers for a time overlooked; viz. 1st. is it a *fact*? 2dly, if it be a fact, what can cause it?

#### §10.

In some cases of ambiguous Middle, the Term in question may be considered as having *in itself*, from its own equivocal nature, two significations; (which apparently constitutes the "*Fallacia equivocationis*" of Logical writers;) others again have a Middle-term which is ambiguous from the context, *i. e.* from what is *understood in conjunction* with it. This division will be found useful, though it is impossible to draw the line accurately in it.

What Logicians have mentioned under the title of "Fallacia amphibolia" is referable to this last class; though in real practice it is not very likely to occur. An *amphibolous* sentence is one that is capable of two meanings, not from the double sense of any of the words, but from its admitting of a double *construction*. The following clause of a sentence from a newspaper, is a curious specimen of Amphibolia:—"For protecting and upholding such electors as refused, contrary to their desires and consciences, to vote for Messrs. A and B, regardless of threats, and unmindful of intimidation."

#### §11.

Of those cases where the ambiguity arises *from the context*, there are several species; some of which Logicians have enumerated, but have neglected to refer them, in the first place, to one common class (*viz.* the one under which they are here placed;) and have even arranged some under the head of Fallacies "*in dictione*," and others under that of "*extra dictionem*."

We may consider, as the first of these species, the Fallacy of "Division" and that of "Composition," taken together; since in each of these the Middle-term is used in one Premiss *collectively*, in the other, *distributively*: if the former of these is the major Premiss, and the latter, the minor, this is called the "Fallacy of Divisions;" the Term which is first taken collectively being afterwards divided; and *vice versâ*. The ordinary examples are such as these; "All the angles of a triangle are equal to two right angles: A B C is an angle of a triangle; therefore A B C is equal to two right angles." "Five is one number; three and two are five: therefore three and two are one number;" or, "three and two are two numbers, five is three and two, therefore five is two numbers:" it is manifest that the Middle-term, three and two (in this last example) is ambiguous, signifying, in the major Premiss, "taken distinctly;" in the minor, "taken together:" and so of the rest.

To the same class we may refer the Fallacy by which men have sometimes been led to admit, or pretend to admit, the doctrine of Necessity; *e. g.* "he who necessarily goes or stays (*i. e.* in reality, "who necessarily goes, or who necessarily stays") is not a free agent; you must necessarily go or stay (*i. e.* 'you must necessarily take the alternative'), therefore you are not a free agent." Such also is the Fallacy which probably operates on most adventurers in lotteries; *e. g.* "the gaining of a high prize is no uncommon occurrence; and what is no uncommon occurrence may reasonably be expected: therefore the gaining of a high prize may reasonably be expected;" the Conclusion, when applied to the individual (as in practice it is), must be understood in the sense of "reasonably expected by a certain individual;" therefore for the Major-Premiss to be true, the middle-Term must be understood to mean, "no uncommon occurrence to some one particular person;" whereas for the Minor (which has been placed first) to be true, you must understand it of "no uncommon occurrence to some one or other;" and thus you will have the Fallacy of Composition.

There is no Fallacy more common, or more likely to deceive, than the one now before us. The form in which it is most usually employed, is to establish some truth, *separately*, concerning *each single* member of a certain class, and thence to infer the same of the *whole collectively*. Thus, some infidels have laboured to prove concerning *some one* of our Lord's miracles, that it might have been the result of an accidental conjuncture of natural circumstances; next, they endeavour to prove the same concerning *another*; and so on; and thence infer that *all* of them occurring as a series might have been so. They might argue in like manner, that because it is not very improbable one may throw sixes in any one out of a hundred throws, therefore it is no more improbable that one may throw sixes a hundred times running.

It will often happen that when two objects are *incompatible*, though either of them, *separately*, may be attained, the incompatibility is disguised by a rapid and frequent transition from the one to the other alternately. *E. G.* You may prove that £100 would accomplish *this* object; and then, that it would accomplish *that*: and then, you recur to the former; and back again: till at length a notion is generated of the possibility of accomplishing *both* by this £100. "Two distinct objects may, by being dexterously presented, again

and again in quick succession, to the mind of a cursory reader, be so associated together *in his thoughts*, as to be conceived capable, when in fact they are not, of being *actually* combined in practice. The fallacious belief thus induced bears a striking resemblance to the optical illusion effected by that ingenious and philosophical toy called the Thaumatrope; in which two objects painted on opposite sides of a card,—for instance a man, and a horse,—a bird, and a cage,—are, by a quick rotatory motion, made to impress the eye in combination, so as to form one picture, of the man on the horse's back, the bird in the cage, &c. As soon as the card is allowed to remain at rest, the figures, of course, appear as they really are, separate and on opposite sides. A mental illusion closely analogous to this, is produced, when by a rapid and repeated transition from one subject to another alternately, the mind is deluded into an idea of the actual combination of things that are really incompatible. The chief part of the defence which various writers have advanced in favour of the system of *Penal-Colonies*, consists, in truth, of a sort of intellectual Thaumatrope. The *prosperity* of the *Colony*, and the *repression of crime*, are, by a sort of rapid whirl, presented to the mind as combined in one picture. A very moderate degree of calm and fixed attention soon shows that the two objects are painted on opposite sides of the card.”\*

The Fallacy of Division may often be considered as turning on the ambiguity of the word “All,” which may easily be dispelled by substituting for it the word “each” or “every,” where that is its signification; e.g. “all these trees make a thick shade,” is ambiguous; meaning, either, “every one of them,” or, “all together.”

This is a Fallacy with which men are extremely apt to deceive *themselves*: for when a multitude of particulars are presented to the mind, many are too weak or too idolent to take a comprehensive view of them; but confine their attention to each single point, by turns; and then decide, infer, and act, accordingly; e.g. the imprudent spendthrift, finding that he is able to afford this, or that, or the other expense, forgets that *all of them together* will ruin him.

To the same head may be reduced that fallacious reasoning by which men vindicate themselves to their own conscience and to others, for the neglect of those *undefined* duties, which, though indispensable, and therefore not left to our choice *whether* we will practise them or not, are left to our discretion as to the *mode*, and the particular occasions, of practising them; e.g. “I am not bound to contribute to this charity in particular; nor to that; nor to the other:” the *practical* conclusion which they draw, is, that *all* charity may be dispensed with.

As men are apt to forget that any two circumstances (not naturally connected) are more rarely to be met with combined than separate, though they be not at all incompatible; so also they are apt to imagine, from finding that they *are* rarely combined, that there *is* an incompatibility; e.g. if the chances are ten to one against a man's possessing strong reasoning powers, and ten to one against exquisite taste, the chances against the combination of the two (supposing them neither connected nor opposed) will

\* Remarks on Transportation, pp. 25 26.

be a hundred to one. Many, therefore, from finding them so rarely united, will infer that they are in some measure incompatible; which Fallacy may easily be exposed in the form of Undistributed middle: "qualities unfriendly to each other are rarely combined; excellence in the reasoning powers, and in taste, are rarely combined; therefore they are qualities unfriendly to each other."

## §12.

The other kind of ambiguity arising from the context, and which is the last case of Ambiguous middle that I shall notice, is the Fallacia accidentis. "fallacia accidentis:" together with its converse, "fallacia a dicto secundum quid ad dictum simpliciter," in each of which the Middle-Term is used, in one Premiss to signify something considered simply, in itself, and as to its essence; and in the other Premiss, so as to imply that its Accidents are taken into account with it; as in the well-known example, "what is bought in the market is eaten; raw meat is bought in the market; therefore raw meat is eaten." Here the Middle has understood in conjunction with it, in the Major-Premiss, "as to its substance merely:" in the Minor, "as to its condition and circumstances."

## §13.

On the non-logical (or material) Fallacies: and first, of "begging the question;" *Petitio Principii*.

Let the name then of "petitio principii" (*begging the question*) be confined to those cases in which one of the Premises either is manifestly the same in sense with the Conclusion, or is actually proved from it, or is such as the persons you are addressing\* are not likely to know, or to admit, except as an inference from the Conclusion: as, *e.g.* if any one should infer the authenticity of a certain history, from its recording such and such facts, the reality of which rests on the evidence of that history.

All other cases in which a Premiss (whether the expressed or the suppressed one) has no sufficient claim to be admitted, I shall designate as the "Fallacy of undue assumption of a Premiss."

Let it however be observed, that in such cases (apparently) as this, we must not too hastily pronounce the argument fallacious; for it may be perfectly fair at the commencement of an argument to assume a Premiss that is not more evident than the Conclusion, or is even ever so paradoxical, provided you proceed to prove fairly that Premiss; and in like manner it is both usual and fair to *begin* by deducing your Conclusion from a Premiss exactly equivalent to it; which is merely throwing the proposition in question into the form in which it will be most conveniently proved.

Arguing in a Circle. Arguing in a Circle, however, must necessarily be unfair; though it frequently is practised undesignedly; *e.g.* some Mechanicians attempt to prove, (what they ought to have laid down as a probable

\*For of two propositions, the one may be the more evident to some, and the other, to others.

but doubtful hypothesis,) that every particle of matter gravitates equally; "why?" because those bodies which contain more particles ever gravitate more strongly, *i. e.* are heavier: "but (it may be urged) those which are heaviest are not always more bulky;" "no, but still they contain more particles, though more closely condensed;" "how do you know that?" "because they are heavier;" "how does that prove it?" "because all particles of matter gravitating equally, that mass which is specifically the heavier must needs have the more of them in the same space."

Of course the *narrower* the Circle, the less likely it is to escape the detection, either of the reasoner himself, (for men often deceive *themselves* in this way) or of his hearers. When there is a long circuit of many intervening propositions before you come back to the original Conclusion, it will often not be perceived that the arguments really do proceed in a "Circle:" just as when any one is advancing in a *straight line* (as we are accustomed to call it) along a plain on this Earth's surface, it escapes our notice that we are really moving along the *circumference of a Circle*, (since the earth is a globe) and that if we could go on without interruption in the same line, we should at length arrive at the very spot we set out from. But this we readily perceive, when we are walking round a small hill.

For instance, if any one argues that you ought to submit to the guidance of himself, or his leader, or his party, &c., because these maintain what is right; and then argues that what is so maintained is right, because it is maintained by persons whom you ought to submit to; and that these are, himself and his party; or again, if any one maintains that so and so must be a thing morally wrong, because it is prohibited in the *moral portion* of the Mosaic-law, and then, that the prohibition of it does form a part of the *moral* (not the ceremonial, or the civil) portion of that Law, *because* it is a

thing *morally wrong*—either of these would be too narrow a Circle to escape detection, unless several intermediate steps were interposed. And if the *form of expression* of each proposition be *varied* every time it recurs,—the sense of it remaining the same,—this will greatly aid the deception.

Of course, the way to expose the Fallacy, is to reverse this procedure: to narrow the Circle, by cutting off the intermediate steps; and to exhibit the same proposition,—when it comes round the second time,—in the same words.

Obliquity of expression. Obliquity and disguise being of course most important to the success of the *petitio principii* as well as of other Fallacies, the Sophist will in general either have recourse to the “Circle,” or else not venture to *state* distinctly his assumption of the point in question, but will rather assert some other proposition which *implies* it; thus keeping out of sight (as a dexterous thief does stolen goods) the point in question, at the very moment when he is taking it for granted. Hence the frequent union of this Fallacy with “*ignoratio elenchi*.” [vide § 15.] The English language is perhaps the more suitable for the Fallacy of *petitio principii*, from its being formed from two distinct languages, and thus abounding in synonymous expressions, which have no resemblance in sound, and no connexion in etymology; so that a Sophist may bring forward a proposition expressed in words of Saxon origin, and give as a reason for it, the very same proposition stated in words of Norman origin; e.g. “to allow every man an unbounded freedom of speech must always be, on the whole, advantageous to the State; for it is highly conducive to the interests of the Community, that each individual should enjoy a liberty perfectly unlimited, of expressing his sentiments.”

#### § 14.

Undue assumption. The next head is, the falsity, or, at least, undue assumption, of a Premiss that is not equivalent to, or dependent on, the Conclusion; which, as has been before said, seems to correspond nearly with the meaning of Logicians, when they speak of “*non causa pro causa*.” This name indeed would seem to imply a much narrower class: there being one species of arguments which are *from cause to effect*; in which, of course, two things are necessary; 1st, the *sufficiency* of the cause; 2d, its establishment; these are the two Premises; if therefore the *former* be unduly assumed, we are arguing from that which is *not* a sufficient cause as if it *were* so: e.g. as if one should contend from such a man’s having been unjust or cruel, that he will certainly be visited with some heavy temporal judgment, and come to an untimely end. In this instance the Sophist, from having assumed, in the Premiss, the (granted) existence of a pretended cause, infers, in the Conclusion, the existence of the pretended effect, which we have supposed to be the Question. Or *vice versa*, the pretended effect may be employed to establish the cause; e.g. inferring sinfulness from temporal calamity. But when *both* the pretended

cause and effect are granted, *i.e.* granted to *exist*, then the Sophist will infer something from their pretended *connexion*; *i.e.* he will assume as a Premiss, that "of these two admitted facts, the one is the cause of the other:" as Whitfield attributed his being overtaken by a hail-storm to his having not preached at the last town; or as the opponents of the Reformation assumed that it was the cause of the troubles which took place at that period, and thence inferred that it was an evil.

Many are the cases in which a *Sign* (see *Sign* put for Cause. *Rhet.* Part I.) from which one might fairly infer a certain phenomenon, is mistaken for the *Cause* of it: (as if one should suppose the falling of the mercury to be a cause of rain; of which it certainly is an indication) whereas the fact will often be the very reverse. *E. G.* . . . . . The *labour* bestowed on any commodity has often been represented as the cause of its value; though every one would call a fine pearl an article of value, even though he should meet with it accidentally in eating an oyster. Pearls are indeed generally obtained by laborious diving: but they do not fetch a high price from that cause; but on the contrary men dive for them *because* they fetch a high price.\* So also exposure to want and hardship in youth, has been regarded as a cause of the hardy constitution of those men and brutes which have been brought up in barren countries of uncongenial climate. Yet the most experienced cattle-breeders know that animals are, *ceteris paribus*, the more hardy for having been well fed and sheltered in youth; but early hardships, by destroying all the tender, ensure the hardiness of the survivors; which is the cause, not the effect, of their having lived through such a training. So, loading a gun-barrel to the muzzle, and firing it, does not *give* it strength; though it *proves*, if it escape, that it *was* strong.

In like manner, nothing is more common than to hear a person state confidently, as from his own experience, that such and such a patient *was cured* by this or that medicine: whereas all that he abso-

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\* Pol. Econ. Lect. IX. p. 253.

lutely *knows*, is that he took the medicine, and that he recovered.

Similar is the procedure of many who are no *theorists* forsooth, but have found by *experience* that the diffusion of education disqualifies the lower classes for humble toil. They have perhaps experienced really a deterioration in this last respect; and having a dislike to education, they shut their eyes to the increase of pauperism; *i. e.* of the habit of depending on parish-pay, rather than on independent exertions; which, to any unprejudiced eye would seem the most natural mode of explaining the relaxation of those exertions. But such men require us, on the ground that they are *practical* men, to adopt the results of their experience; *i. e.* to acquiesce in their crude guesses as to cause and effect, (like that of the rustic who made Tenterden-steeple the cause of Goodwin Sands,) precisely because they are *not* accustomed to reason.

Indirect  
assumption.

Sometimes men are shamed into admitting an unfounded assertion, by being confidently told, that it is so evident, that it would argue great weakness to doubt it. In general, however, the more skilful Sophist will avoid a *direct assertion* of what he means unduly to assume; because that might direct the reader's attention to the consideration of the question whether it be *true* or not; since that which is indisputable does not so often need to be asserted. It succeeds better, therefore, to *allude* to the proposition, as something *curious* and remarkable; just as the Royal Society were imposed on by being asked to *account for* the fact that a vessel of water received no addition to its weight by a dead fish put into it; while they were seeking for the *cause*, they forgot to ascertain the *fact*; and thus admitted without suspicion a mere fiction. Thus an eminent Scotch writer,\* instead of *asserting* that the "advocates of Logic

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\* Dugald Stewart.

have been worsted and driven from the field in every controversy," (an assertion which, if made, would have been the more readily ascertained to be perfectly groundless,) merely *observes*, that "it is a circumstance not a little *remarkable*."

Again, any one who is decrying all appeal to *evidence* in behalf of Christianity, will hardly venture to *assert plainly* that such was the practice of the Apostles, and that they called on men to believe what they preached, without any reason for believing. *That* would present too glaring a contrast to the truth. He will succeed better by merely dwelling on the earnest demand of "faith" made by the Apostles; trusting that the inadvertent reader will forget that the *basis* on which this demand was made to rest, was, the evidence of miracles and prophecies; and will thus be led to infer that we are to imitate the Apostles by a procedure which is in fact the opposite of theirs.

One of the many contrivances employed for this purpose, is what may be called the "Fallacy of *references*," which is particularly common in popular theological works. It is of course a circumstance which adds great weight to any assertion, that it shall seem to be supported by many passages of Scripture, or of the Fathers and other ancient writers, whose works are not in many people's hands. Now when a writer can find few or none of these, that distinctly and decidedly favour his opinion, he may at least find many which may be conceived capable of being so understood, or which, in some way or other, remotely relate to the subject; but if these texts were inserted at length, it would be at once perceived how little they bear on the question; the usual artifice therefore is, to give merely *references* to them; trusting that nineteen out of twenty readers will never take the trouble of turning to the passages, but, taking for granted that they afford, each, some degree of confirmation to what is maintained, will be overawed by seeing every assertion supported, as they suppose, by five or six Scripture-texts,—as many from the Fathers, &c.

Great force is often added to the employment in a declamatory work, of the fallacy now before us, by bitterly *reproaching* or *deriding* an opponent, as denying some sacred truth, or some evident axiom; assuming, that is, that he denies the *true* premiss, and keeping out of sight the one on which the question really turns. *E. G.* A declaimer who is maintaining some doctrine as being taught in Scripture, may impute to his opponents a contempt for the authority of Scripture, and reproach them for impiety; when the question really is, whether the doctrine be scriptural or not.

Frequently the Fallacy of *irrelevant-conclusion* [*ignoratio elenchi*] is called in to the aid of this; *i. e.* the Premiss is assumed on the ground of another proposition, *some-what like it*, having been proved. Thus, in arguing by example, &c. the *parallelism* of two cases is often assumed from their being in *some respects* alike, though perhaps they differ in the very point which is *essential* to the argument. *E. G.* From the circumstance that some men of humble station, who have been well educated, are apt to think themselves above low drudgery, it is ar-

gued, that universal education of the lower orders would beget general idleness: this argument rests, of course, on the assumption of *parallelism* in the two cases, *viz.* the past and the future; whereas there is a circumstance that is absolutely essential, in which they differ; for when education is *universal*, it must cease to be a *distinction*; which is probably the very circumstance that renders men too proud for their work.

## §15.

Irrelevant  
Conclusion.

The last kind of Fallacy to be noticed is that of Irrelevant-Conclusion, commonly called *ignoratia elenchi*.

Various kinds of propositions are, according to the occasion, substituted for the one of which proof is required. Sometimes the Particular for the Universal; sometimes a proposition with different Terms: and various are the contrivances employed to effect and to conceal this substitution, and to make the Conclusion which the Sophist has drawn, answer, practically, the same purpose as the one he ought to have established. I say, "practically the same purpose," because it will very often happen that some *emotion* will be excited—some sentiment impressed on the mind—(by a dexterous employment of this Fallacy) such as shall bring men into the *disposition* requisite for your purpose, though they may not have assented to, or even stated distinctly in their own minds, the *proposition* which it was your business to establish.\* Thus if a Sophist has to defend one who has been guilty of some *serious* offence, which he wishes to extenuate, though he is unable distinctly to prove that it is not such, yet if he can succeed in *making the audience laugh* at some casual matter, he has gained practically the same point.

So also if any one has pointed out the extenuating circumstances in some particular case of offence, so as to show that it differs widely from the generality of the same class, the Sophist, if he find himself unable to disprove these circumstances, may do away the force of them, by simply *referring*

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\* See Rhetoric, Part II.

*the action to that very class, which no one can deny that it belongs to, and the very name of which will excite a feeling of disgust sufficient to counteract the extenuation; e. g. let it be a case of peculation; and that many mitigating circumstances have been brought forward which cannot be denied, the sophistical opponent will reply, "Well, but after all, the man is a rogue, and there is an end of it;" now in reality this was (by hypothesis) never the question; and the mere assertion of what was never denied, ought not, in fairness, to be regarded as decisive; but practically, the odiousness of the word, arising in great measure from the association of those very circumstances which belong to most of the class, but which we have supposed to be absent in this particular instance, excites precisely that feeling of disgust, which in effect destroys the force of the defence. In like manner we may refer to this head, all cases of improper appeals to the passions, and every thing else which is mentioned by Aristotle as extraneous to the matter in hand (ἐξω τοῦ πράγματος.)*

In all these cases, as has been before observed, if the fallacy we are now treating of be employed for the apparent establishment, not of the *ultimate* Conclusion, but (as it very commonly happens) of a *Premiss*, (*i. e.* if the *Premiss* required be assumed on the ground that some proposition resembling it has been proved) then there will be a combination of this Fallacy with the last mentioned.

Combination  
of this Fallacy  
with the fore-  
going.

For instance, instead of proving that "this Prisoner has committed an atrocious fraud:" you prove that "the fraud he is accused of is atrocious:" instead of proving (as in the well-known tale of Cyrus and the two coats) that "the taller boy had a right to force the other boy to exchange coats with him," you prove that "the exchange would have been advantageous to both:" instead of proving that "a man has not a right to educate

his children or to dispose of his property, in the way *he thinks best*," you show that the way in which he educates his children, or disposes of his property is not *really the best*: instead of proving that "the poor ought to be relieved in this way rather than in that," you prove that "the poor *ought to be relieved*:" instead of proving that "an irrational-agent—whether a brute or a madman—can never be deterred from any act by apprehension of punishment," (as for instance, a dog, from sheep-biting, by fear of being beaten) you prove that "the beating of one dog does not operate as an *example to other dogs*," &c. and then you proceed to assume as premises, conclusions different from what have really been established.

A good instance of the employment and exposure of this Fallacy occurs in Thucydides, in the speeches of Cleon and Diodotus concerning the Mitylenæans: the former (over and above his appeal to the angry passions of his audience) urges the *justice* of putting the revolters to death; which, as the latter remarked, was nothing to the purpose, since the Athenians were not sitting in *judgment*, but in *deliberation*; of which the proper end is *expediency*. And to prove that they had a right to put them to death, did not prove this to be an *advisable* step.

It is evident, that *ignoratio elenchi* may be employed as This fallacy used well for the apparent *refutation* of your opponent's proposition, as for the apparent establishment of your own; for it is substantially the same thing, to *prove* what was not denied, or to *disprove* what was not asserted. The latter practice is not less common; and it is more offensive, "because it frequently amounts to a personal affront, in attributing to a person opinions, &c. which he perhaps holds in abhorrence. Thus, when in a discussion one party vindicates, on the ground of general expediency, a particular instance of resistance to Government in a case of

intolerable oppression, the opponent may gravely maintain, that "we ought not to do evil that good may come:" a proposition which of course had never been denied; the point in dispute being "whether resistance in this particular case *were* doing evil or not." Or again, by way of disproving the assertion of the "*right* of private-judgment in religion," one may hear a grave argument to prove that "it is impossible every one can be *right in his judgment*." In these examples, it is to be remarked, (as well as in some given just above,) that the Fallacy of *petitio principii* is combined with that of *ignoratio elenchi*; which is a very common and often successful practice; *viz.* the Sophist proves, or disproves, not the proposition which is really in question, but one which is so dependent on it as to proceed on the supposition that it is already decided, and can admit of no doubt; by this means his "assumption of the point in question" is so indirect and oblique, that it may easily escape notice; and he thus establishes, practically, his Conclusion, at the very moment he is withdrawing your attention from it to another question. *E. G.* An advocate will prove, and dwell on the high *criminality* of a certain act, and the propriety of severely punishing it; assuming (instead of proving) the *commission*.

There are certain kinds of argument recounted and named by Logical writers, which we should by no means universally call Fallacies; but which *when unfairly used, and so far as they are fallacious*, may very well be referred to the present head; such as the "*argumentum ad hominem*," ["or personal argument,"] "*argumentum ad hominem, verecundiam*," "*argumentum ad populum*," &c. all of them regarded as contradistinguished from "*argumentum ad rem*;" or, according to others (meaning probably the very same thing) "*ad judicium*." These have all been described in the lax and popular language before alluded to, but not scientifically: the "*argumentum ad hominem*," they say, "is addressed to the peculiar circumstances, character, avowed opinions, or past conduct of the individual, and therefore has a reference to him only, and does not bear directly and absolutely on the real question, as the '*argumentum ad rem*' does:" in like manner, the "*argumentum ad verecundiam*" is described as an appeal to our reverence for some respected authority, some venerable institution, &c. and the "*argumentum ad populum*," as an appeal to the prejudices, passions, &c. of the multitude; and so of the rest. Along with these is usually enumerated "*argumentum ad*

*ignorantiam*," which is here omitted, as being evidently nothing more than the employment of *some* kind of Fallacy, in the widest sense of that word, towards such as are likely to be deceived by it.

Technical analysis of personal argument, &c. It appears then (to speak rather more technically) that in the "*argumentum ad hominem*" the conclusion which actually is established, is not the *absolute* and *general* one in question, but *relative* and particular; *viz.* not that "such and such is the fact," but that "*this man* is bound to admit it, in conformity to his principles of Reasoning, or in consistency with his own conduct, situation," &c. \* Such a conclusion it is often both allowable and necessary to establish, in order to silence those who will not yield to fair general argument; or to convince those whose weakness and prejudices would not allow them to assign to it its due weight. It is thus that our Lord on many occasions silences the cavils of the Jews; as in the vindication of healing on the Sabbath, which is paralleled by the authorized practice of drawing out a beast that has fallen into a pit. All this, as we have said, is perfectly fair, provided it be done plainly, and *avowedly*; but if you attempt to *substitute* this partial and relative Conclusion for a more general one—if you triumph as having established your proposition absolutely and universally, from having established it, in reality, only as far as it relates to your opponent, then you are guilty of a Fallacy of the kind which we are now treating of: your Conclusion is not in reality that which was, by your own account, proposed to be proved. The fallaciousness depends upon the *deceit*, or attempt to deceive. The same observations will apply to "*argumentum ad verecundiam*," and the rest.

### §16.

The Fallacy of "irrelevant-conclusion" [*ignoratio elenchi*] is nowhere

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\* The "*argumentum ad hominem*" will often have the effect of shifting the *burden of proof*, not unjustly, to the adversary. (See Rhet. Part. I. Chap. III. § 2.) A common instance is the defence, certainly the readiest and most concise, frequently urged by the Sportsman, when accused of barbarity in sacrificing unoffending hares or trout to his amusement: he replies, as he may safely do, to most of his assailants, "why do you feed on the flesh of the harmless sheep and ox?" and that this answer presses hard, is manifested by its being usually opposed by a *palpable falsehood*; *viz.* that the animals which are killed for food are sacrificed to our *necessities*; though not only men *can*, but a large proportion (probably a great majority) of the human race actually *do*, subsist in health and vigour without flesh-diet; and the earth would support a much greater human population were such a practice universal.

When shamed out of this argument they sometimes urge that the brute creation would overrun the earth, if we did not kill them for food; an argument, which, if it were valid at all, would not justify their feeding on *fish*; though, if fairly followed up, it *would* justify Swift's proposal for keeping down the excessive population of Ireland. The true reason, *viz.* that they eat flesh for the gratification of the palate, and have a taste for the pleasures of the table, though not for the sports of the field, is one which they do not like to assign.

Shifting ground. more common than in protracted controversy, when one of the parties, after having attempted in vain to maintain his position, *shifts his ground* as covertly as possible to another, instead of honestly giving up the point.

A practice of this nature is common in oral controversy especially; *viz.* Fallacy of combating the two Premises alternately. that of combating *both* your opponent's Premises *alternately*, and shifting the attack from the one to the other, without waiting to have either of them decided upon before you quit it. "*And besides*," is an expression one may often hear from a disputant who is proceeding to a fresh argument, when he cannot establish, and yet will not abandon, his first.

## §17.

Fallacy of Objections. Similar to this case is that which may be called the *Fallacy of objections*: *i. e.* showing that *there are* objections against some plan, theory, or system, and thence inferring that it should be rejected; when that which *ought* to have been proved is, that there are *more*, or *stronger* objections, against the receiving than the rejecting of it. This is the main, and almost universal Fallacy of anti-Christians; and is that of which a young Christian should be first and principally warned. They find numerous "objections" against various parts of Scripture; to some of which no satisfactory answer can be given; and the incautious hearer is apt, while his attention is fixed on these, to forget that there are infinitely more, and stronger objections against the supposition that the Christian Religion is of *human* origin; and that where we cannot answer all objections, we are bound in reason and in candour to adopt the hypothesis which labours under the least. That the case is as I have stated, I am authorized to assume, from this circumstance; that *no complete and consistent account has ever been given of the manner in which the Christian Religion, supposing it a human contrivance, could have arisen and prevailed* as it did. And yet this may obviously be demanded with the utmost fairness, of those who deny its divine origin. The Religion exists: that is the phenomenon; those who will not allow it to have come from God, are bound to solve the phenomenon on some other hypothesis less open to objections. They are not indeed called on to prove that it *actually did* arise in this or that way; but to suggest (consistently with acknowledged facts) some probable way in which it *may* have arisen, reconcilable with all the circumstances of the case. That infidels have never done this, though they have had 1800 years to try, amounts to a confession that no such hypothesis can be devised, which will not be open to greater objections than lie against Christianity.

The Fallacy of Objections is also the stronghold of bigoted anti-reformers, who oppose all reforms and alterations indiscriminately; for there never was, or will be, any plan executed or proposed, against which strong and even unanswerable objections may not be urged; so that unless the opposite objections be set in the balance on the other side, we can never advance a step. E. G. The defenders of the Transportation-system—a system which, as an eminent writer has observed, was "begun in defiance of all Reason, and persevered in, in defiance of all Experience"—are accustomed to ask

"what kind of Secondary-punishment would you substitute?" and if any one is suggested, they adduce the objections, and difficulties, real and apparent, to which it is exposed; if another is proposed, they proceed in the same manner; and so on, without end. For of all the other plans of Secondary-punishment that have ever been tried, or imagined, the *best* must be open to *some* objections, though the *very worst* is much *less* objectionable than Transportation.\* "There are objections," said Dr. Johnson, "against a *plenum*, and objections against a *vacuum*; but one of them must be true."

The very same Fallacy indeed is employed (as has been said) on the other side, by those who are for overthrowing whatever is established as soon as they can prove an objection against it; without considering whether more and weightier objections may not lie against their own schemes; but their opponents have this decided advantage over them, that they can urge with great plausibility, "we do not call upon you to *reject* at once whatever is objected to, but merely to *suspend your judgment*, and not come to a decision as long as there are reasons on both sides:" now since there always *will be* reasons on both sides, this *non-decision* is practically the very same thing as a *decision in favour of the existing state* of things. "Not to resolve, is to resolve."† The delay of trial becomes equivalent to an *acquittal*.

## §18.

Fallacy of proving a part of the question.

Another form of *ignoratio elenchi*, which is also rather the more serviceable on the side of the respondent, is, to prove or disprove *some part* of that which is required, and dwell on *that*, suppressing all the rest.

Thus, ..... one may maintain (with perfect truth) that *mere* intellectual ability—the reasoning powers *alone*—are insufficient for the attainment of truth in religious questions; and may thence proceed to assume (as if it were the same proposition) that *all* employment of reasoning—all intellectual cultivation—are perfectly useless on such questions, and are to be discarded as foreign from the subject.

This is the great art of the *answerer* of a book; suppose the main positions in any work to be irrefragable, it will be strange if some illustration of them, or some subordinate part, in a Reply, short, will not admit of a plausible objection; the opponent then joins issue on one of these incidental questions, and comes forward with "a Reply" to such and such a work. And such a "Reply" is still easier and more plausible, when it happens—as it often will—that a

\* See Letters to Earl Grey on Transportation.

† Bacon.

real and satisfactory refutation can be found of some one, or more, of several arguments, each, singly, proving completely the same conclusion; (as many a theorem of Euclid admits of several different demonstrations;) or an answer to one or more of several objections, each, separately, decisive against a certain scheme or theory; though it is evident on reflection, that if the rest, or any one of them, remain unrefuted and unanswerable, the conclusion is established, and stands as firm as if the answerer had urged nothing.

Danger of maintaining too much.

Hence the danger of ever advancing more than can be well maintained, since the refutation of *that* will often quash the whole. The Quakers would perhaps before now have succeeded in doing away our superfluous and irreverent oaths, if they had not, besides many valid and strong arguments, adduced so many that are weak and easily refuted. Thus also, a guilty person may often escape by having too much laid to his charge; so he may also, by having too much evidence against him, *i. e.* some that is not in itself satisfactory. Accordingly, a prisoner may sometimes obtain acquittal by showing that one of the witnesses against him is an infamous informer and spy; though perhaps if that part of the evidence had been omitted, the rest would have been sufficient for conviction.

Cases of this nature might very well be referred also to the Fallacy formerly mentioned, of inferring the Falsity of the Conclusion from the Falsity of a Premiss; which indeed is very closely allied to the present Fallacy: the real question is, "whether or not this Conclusion *ought to be admitted*;" the Sophist confines himself to the question, "whether or not it is *established by this particular argument*;" leaving it to be inferred by the audience, if he has carried his point as to the latter question, that the former is thereby decided; which is then, and then only, a correct inference, when there is good reason for believing that other and better arguments would have been adduced, if there had been any. (See above, at the end of §6.)

### § 19.

It will readily be perceived that nothing is less conducive to the success of the Fallacy in question, than to state clearly, in the outset, either the proposition you are about to prove, or that which you ought to prove. It answers best to *begin* with the *Premises*, and to introduce a pretty long chain of argument before you arrive at the Conclusion. The careless hearer takes for granted, at the beginning, that this chain will lead to the Conclusion required; and by the time you are come to the end, he is ready to take for granted that the Conclusion which you draw *is* the one required; his idea of the question having gradually become indistinct. This Fallacy is greatly aided by the common practice of suppressing the Conclusion and leaving it to be supplied by the hearer; who is of course less likely to perceive whether it be really that "which was to be proved," than if it were distinctly stated. The practice therefore is at best suspicious; and it is better in general to avoid it, and to give and require a distinct statement of the Conclusion intended.

The Fallacy now before us is, perhaps, the most common

form of that confusion of thought to which those are liable who have been irregularly and unskilfully educated ;—who have collected perhaps a considerable amount of knowledge, without arrangement, and without cultivation of logical habits ;—who have learned (as I have heard it expressed) a good many *answers* without the *questions*. Most of the erroneous views in Morals, and in other subjects, which prevail among such persons, may be exhibited in the form of “Fallacies of Irrelevant-conclusion.” *E. G.* The well-known wrong decision respecting the two boys and their coats, for which Cyrus was punished by his preceptor, was a mistake of the real question : which was, not, “which coat *fitted* each boy the best,” but “who had the *right* to dispose of them.” And similar cases to this occur every day.

Such propositions as the following, one may often hear, sophistically or negligently, confounded together : “The Apostles held *religious assemblies* on the first day of the week,” with “They *transferred the Sabbath* from the seventh day to the first :” “A Jew, Mahometan, or Roman Catholic, is not the *most eligible person* to hold Office in a Protestant-christian country,” with “Such persons ought not to be *legally eligible* :” “The Apostles *established* such and such a form of government in the Churches they founded,” with “They designed this form to be binding on all Christians as an *ordinance for ever*,” &c.

#### § 20.

Before we dismiss the subject of Fallacies, it may not be improper to mention the just and ingenious remark, that *Jests* are mock-Fallacies ; *i. e.* Fallacies so palpable as not to be likely to deceive any one, but yet bearing just that resemblance of Argument which is calculated to amuse by the contrast ; in the same manner that a parody does, by the contrast of its levity with the serious production which it imitates. There is indeed something laughable even in Fallacies which are intended for serious conviction, when they are thoroughly exposed.

There are several different kinds of joke and railery, which will be found to correspond with the different kinds of Fallacy. The Pun (to take the simplest and most obvious case) is evidently, in most instances, a mock-argument founded on a palpable equivocation of the Middle-Term : and others in like manner will be found to correspond to the respective Fallacies, and to be *imitations* of serious argument.

It is probable indeed that all jests, sports, or games, (*παιδίαι*) properly so called, will be found, on examination, to be *imitative* of serious

transactions ; as of War, or Commerce.\* But to enter fully into this subject would be unsuitable to the present occasion.

A treatise on what are called the "laws of evidence"—the different *kinds*, strictly speaking, of arguments—and the occasions for which they are respectively suited, &c., which is what some would expect in a Logical Work, will be found in the 1st part of the "Elements of Rhetoric."

\* See some excellent remarks on "Imitation," in Dr. A. Smith's posthumous Essays.

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## APPENDIX.

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### No. I.

#### MISCELLANEOUS EXAMPLES FOR THE EXERCISE OF LEARNERS.

N. B. In such of the following Examples as are not in a syllogistic form, it is intended that the student should practise the reduction of them into that form; those of them, that is, in which the reasoning is in itself sound: *viz.* where it is impossible to admit the Premises and deny the Conclusion. Of such as are apparent Syllogisms, the validity must be tried by logical rules, which it may be advisable to apply in the following order: 1st. Observe whether the argument be Categorical or Hypothetical. 2dly. If the argument be categorical, count the terms. 3dly. If only three, observe whether the Middle be distributed. 4thly. Observe whether the Premises are both negative; (*i. e.* really, and not in appearance only,) and if one is, whether the Conclusion be negative also; or affirmative, if both Premises affirmative. 5thly. Observe what terms are Distributed in the conclusion, and whether the same are distributed in the Premises. 6thly. If the Syllogism is not a Categorical in the first Figure, reduce it to that form.

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1. No one is free who is enslaved by his appetites: a sensualist is enslaved by his appetites: therefore a sensualist is not free.

2. None but Whites are civilized: the ancient Germans were Whites: therefore they were civilized.

3. None but Whites are civilized: the Hindoos are not Whites: therefore they are not civilized.

4. None but civilized people are Whites: the Gauls were Whites: therefore they were civilized.

5. No one is rich who has not enough: no miser has enough: therefore no miser is rich.

6. Few treatises of science convey important truths, without any intermixture of error, in a perspicuous and interesting form: and therefore, though a treatise would deserve much attention which should possess such excellence, it is plain that few treatises of science do deserve much attention.

7. No one who lives with another on terms of confidence is justified, on any pretence, in killing him : Brutus lived on terms of confidence with Cæsar : therefore he was not justified, on the pretence he pleaded, in killing him.

8. He that destroys a man who usurps despotic power in a free country deserves well of his countrymen : Brutus destroyed Cæsar, who usurped despotic power in Rome : therefore he deserved well of the Romans.

9. A story is not to be believed, the reporters of which give contradictory accounts of it : the story of the life and exploits of Buonaparte is of this description : therefore it is not to be believed.

10. Of two evils the less is to be preferred : occasional turbulence, therefore, being a less evil than rigid despotism, is to be preferred to it.

11. According to theologians, a man must possess faith in order to be acceptable to the Deity : now he who believes all the fables of the Hindoo mythology must possess faith : therefore such an one must, according to the theologians, be acceptable to the Deity.

12. That man is independent of the caprices of Fortune who places his chief happiness in moral and intellectual excellence : a true philosopher is independent of the caprices of Fortune : therefore a true philosopher is one who places his chief happiness in moral and intellectual excellence.

13. For those who are bent on cultivating their minds by diligent study, the incitement of academical honours is unnecessary ; and it is ineffectual, for the idle, and such as are indifferent to mental improvement : therefore the incitement of academical honours is either unnecessary or ineffectual.

14. Logic is indeed worthy of being cultivated, if Aristotle is to be regarded as infallible : but he is not : Logic therefore is not worthy of being cultivated.

15. All studies are useful which tend to advance a man in life, or to increase national and private wealth : but the course of studies pursued at Oxford has no such tendency : therefore it is not useful.

16. Any one who is candid will refrain from condemning a book without reading it : some Reviewers do not refrain from this : therefore some Reviewers are not candid.

17. If any objection that can be urged would justify a change of established laws, no laws could reasonably be maintained : but some laws can reasonably be maintained : therefore no objection that can be urged will justify a change of established laws.

18. The connexion of soul and body cannot be comprehended or explained ; but it must be believed : therefore something must be believed which cannot be comprehended or explained.

19. Lias lies above Red Sandstone ; Red Sandstone lies above Coal : therefore Lias lies above Coal.

20. Cloven feet being found universally in horned animals, we may conclude that this fossil animal, since it appears to have had cloven feet, was horned.

21. All that glitters is not gold : tinsel glitters ; therefore it is not gold.

22. Nothing is heavier than Platina : feathers are heavier than nothing : therefore feathers are heavier than Platina.

23. He who calls you a man speaks truly : he who calls you a fool, calls you a man : therefore he who calls you a fool speaks truly.

24. Warm countries alone produce wines : Spain is a warm country : therefore Spain produces wines.

25. It is an intensely cold climate that is sufficient to freeze Quicksilver : the climate of Siberia is sufficient to freeze Quicksilver : therefore the climate of Siberia is intensely cold.

26. Mistletoe of the oak is a vegetable excrescence which is not a plant ; and every vegetable excrescence which is not a plant, is possessed of magical virtues : therefore Mistletoe of the oak is possessed of magical virtues.

27. All cold is to be expelled by heat : this person's disorder is a cold : therefore it is to be expelled by heat.

28. Opium is a poison : but physicians advise some of their patients to take opium : therefore physicians advise some of their patients to take poison.

29. What we eat grew in the fields : loaves of bread are what we eat . therefore loaves of bread grew in the fields.

30. Animal-food may be entirely dispensed with : (as is shown by the practice of the Brahmins and of some monks ; ) and vegetable-food may be entirely dispensed with (as is plain from the example of the Esquimaux and others ; ) but all food consists of animal-food and vegetable-food : therefore all food may be dispensed with.

31. No trifling business will enrich those engaged in it : a mining speculation is no trifling business : therefore a mining speculation will enrich those engaged in it.

32. He who is most hungry eats most : he who eats least is most hungry : therefore he who eats least eats most.

33. Whatever body is in motion must move either in the place where it is, or in a place where it is not : neither of these is possible : therefore there is no such thing as motion. [In this instance, as well as in the one lately noticed, Aldrich mistakes the character of the difficulty ; which is, not to prove the truth of that which is self-evident, but to explain an apparent demonstration militating against that which nevertheless no one ever doubted. He says in this case, "*solvitur ambulando* ;" but (*pace tanti viri*) this is no solution at all, but is the very thing which constitutes the difficulty in question ; for it is precisely because we know the possibility of motion, that a seeming proof of its impossibility produces perplexity.]

34. No soldiers should be brought into the field who are not well qualified to perform their part. None but veterans are well qualified to perform their part. None but veterans should be brought into the field.

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## APPENDIX.

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### No. II.

#### PRAXIS OF LOGICAL ANALYSIS.

Some have expressed much contempt for the mode in which Logic is usually taught, and in which students are examined in it, as comprising no more than a mere enumeration of technical rules, and perhaps an application of them to the simplest examples, exhibited in a form already syllogistic, or nearly so. But the student who wishes to acquire, and to show that he has acquired, not only the elementary rules, but a facility of applying them in practice, should proceed..... to exercise himself in analysing logically.....and somewhat in the manner of the subjoined specimen, some of Euclid's demonstrations,\*—various portions of Aristotle's works,—the opening of Warburton's "Divine Legation," (which exhibits the arguments in a form very nearly syllogistic)—several parts of Chillingworth's Defence of Protestantism,—the concluding part of Paley's *Horæ Paulinæ*,—Leslie's Method with the Deists,—various portions of A. Smith's *Wealth of Nations*,—and other argumentative works on the most dissimilar subjects.

A student who should prepare himself, in this manner, in one or more such books, and present himself for this kind of examination in them would furnish a good test for ascertaining his proficiency in practical Logic.

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As the rules of Logic apply to arguments only after they have been exhibited at full length in the bare elementary form, it may be useful to subjoin some remarks on the mode of analysing and reducing to that form, any train of argu-

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\* Some examples will be found in our *Outlines of Logic*.

ment that may be presented to us: since this must in general be the first step taken in an attempt to apply logical rules.

First, then, of whatever length the reasoning may be, whether treatise, chapter, or paragraph, begin with the concluding assertion:—not necessarily the last sentence expressed, but the last point established;—and this, whether it be formally enunciated, or left to be understood. Then, tracing the reasoning backwards, observe on what ground that assertion is made. The assertion will be your Conclusion; the ground on which it rests, your Premises. The whole Syllogism thus obtained may be tried by the rules of Logic.

If no incorrectness appear in this syllogism, proceed to take the premises separately, and pursue with each the same plan as with the conclusion you first stated. A premiss must have been used as such, either because it required no proof, or because it had been proved. If it have not been proved, consider whether it be so self-evident as to have needed no proof. If it have been proved, you must regard it as a conclusion derived from other assertions which are premises to it: so that the process with which you set out will be repeated; *viz.* to observe on what grounds the assertion rests, to state these as premises, and to apply the proper rules to the syllogism thus obtained. Having satisfied yourself of the correctness of this, proceed, as before, to state its premises, if needful, as conclusions derived from other assertions. And thus the analysis will go on (if the whole chain of argument be correct,) till you arrive at the premises with which the whole commences; which of course should be assertions requiring no proof; or, if the chain be any where faulty, the analysis will proceed till you come to some proposition, either assumed as self-evident, though requiring proof, or incorrectly deduced from other assertions.\*

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\*Many students probably will find it a very clear and convenient mode

*Example of Analysis applied to the first part of Paley's Evidences.*

The ultimate Conclusion, that "The Christian Religion came from God" is made to rest (as far as "the direct historical evidence" is concerned) on these two premises; That "A Religion attested by Miracles is from God;" and that "The Christian Religion is so attested."

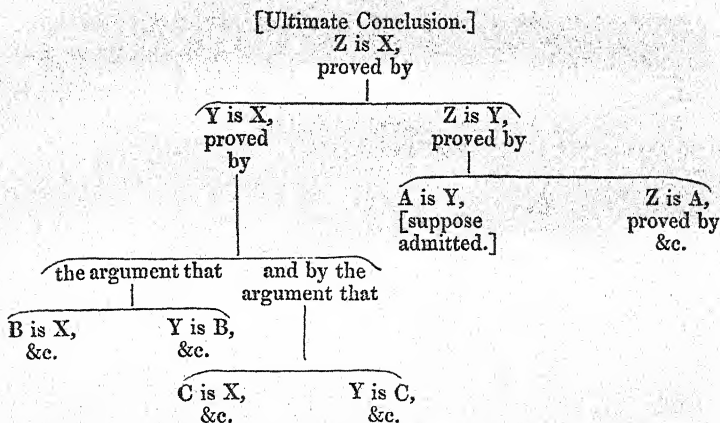
Of these two premises, it should be remarked, the Minor seems to have been admitted, while the Major was denied, by the unbelievers of old: whereas at present the case is reversed.\*

Paley's argument therefore goes to establish the Minor premiss, about which alone, in these days, there is likely to be any question.

He states with this view, two propositions: *viz.*

PROP. I.—"That there is satisfactory evidence, that many, professing to be original witnesses of the Christian miracles, passed their lives in labours, dangers, and sufferings, voluntarily undergone in attestation of

of exhibiting the logical analysis of a course of argument, to draw it out in the form of a Tree, or Logical Division; thus:—



\* It is clear from the fragments remaining of the ancient arguments against Christianity, and the allusions to them in Christian writers, and also from the Jewish accounts of the life of Jesus which are still extant, (under the title of *Toldoth Jeschu*) that the original opponents of Christianity admitted that miracles were wrought, but denied that they proved the divine origin of the religion, and attributed them to Magic. This concession, in persons living so much nearer to the times assigned to the miracles, should be noticed as an important evidence; for, credulous as men were in those days respecting magic, they would hardly have resorted to this explanation, unless some, at least plausible, evidence for the miracles had been adduced. And they could not but be sensible that to prove (had that been possible) the pretended miracles to be *impostures*, would have been the most decisive course; since *that* would at once have disproved the religion.

the accounts which they delivered, and solely in consequence of their belief of those accounts; and that they also submitted, from the same motives, to new rules of conduct."

PROP. II.—"That there is NOT satisfactory evidence, that persons pretending to be original witnesses of any other similar miracles, have acted in the same manner, in attestation of the accounts which they delivered, and solely in consequence of their belief of the truth of those accounts."

Of these two propositions, the latter, it will easily be perceived, is the Major premiss, stated as the *converse by Negation* (Book II. Chap. II. §4) of a universal affirmative: the former proposition is the Minor.

As a Syllogism in *Barbara*, therefore, the whole will stand thus:

"All miracles attested by such and such evidence, are worthy of credit:" (by conversion, "none which are not worthy of credit are so attested.")

"The Christian miracles are attested by such and such evidence:" Therefore "they are worthy of credit."

The Minor premiss is first proved by being taken as *several* distinct ones, each of which is separately established.—See Book II. Chap. IV. § I.

I. It is proved that the first propagators of Christianity *suffered*; by showing,

1st. *A priori*, from the nature of the case, that they were *likely* to suffer; [because they were preachers of a religion unexpected and unwelcome: 1. to the Jews; and 2. to the Gentiles.\*]

2d. From *profane testimony*.

3d. From the testimony of *Christian Writings*. [And here comes in the proof of one of the premises of this last argument; *viz*, the proof of the credibility, *as to this point* at least, of the Christian Writings.]

These arguments are *cumulative*; *i. e.* each separately goes to establish the probability of the one common conclusion, that "the first propagators of Christianity *suffered*."

By similar arguments it is shown that their sufferings were such as they *voluntarily* exposed themselves to.

II. It is proved that "What they suffered *for* was a *miraculous* story:" by

1st. The nature of the case; They could have had nothing but miracles on which to rest the claims of the new religion.

2d. By allusions to miracles, particularly to the Resurrection, both in Christian and in profane Writers, as the evidence on which the religion rested.

The same course of argument goes to show that the miracles in attestation of which they suffered were such as they professed to have *witnessed*.

These arguments again are cumulative.

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\* As Paul expresses it, "to the Jews, a *stumbling-block*; and to the Greeks, *foolishness*."

III. It is proved that "The miracles thus attested are what we call the *Christian miracles*:" in other words, that the story was, in the main, that which we have now in the Christian Scriptures; by

§ 1st. The nature of the case; *viz.* that it is improbable the original story should have completely died away, and a substantially new one have occupied its place;

§ 2d. by The incidental allusions of ancient writers, both Christian and profane, to accounts agreeing with those of our Scriptures, as the ones then received;

§ 3d. by The credibility of our Historical Scriptures: This is established by several distinct arguments, each separately tending to show that these books were, from the earliest ages of Christianity, well known and carefully preserved among Christians: *viz.*

§ i. They were *quoted* by ancient Christian writers.

§ ii. with *peculiar respect*.

§ iii. Collected into a *distinct volume*, and

§ iv. distinguished by appropriate names and *titles of respect*.

§ v. *Publicly read* and expounded, and

§ vi. had *commentaries*, &c. written on them;

§ vii. Were received by Christians of *different sects*; &c. &c.\*

The latter part of the first main proposition, branches off into two; *viz.* 1st., that the early Christians submitted to new *rules of conduct*; 2d., that they did so, *in consequence* of their belief in miracles wrought before them.

Each of these is established in various parts of the above course of argument, and by similar premises; *viz.* the nature of the case,—the accounts of heathen writers,—and the testimony of the Christian Scriptures, &c.

The Major premiss, that "Miracles thus attested are worthy of credit," (which must be combined with the former, in order to establish the conclusion, that "the Christian miracles are worthy of credit,") is next to be established.

Previously to his entering on the second main proposition; (which I have stated to be the Converse by negation of this Major premiss,) he draws his conclusion (Ch. X. Part I.) from the Minor premiss, in combination with the Major, resting that Major on

§ 1st. The *a priori improbability* that a false story should have been thus attested: *viz.*

"If it be so, the religion must be true.† These men could not be

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\* For some important remarks respecting the different ways in which this part of the argument is presented to different persons, See "*Hinds on Inspiration*," pp. 30—46.

† This is the *ultimate* conclusion deduced from the premiss, that "it is attested by real *Miracles*; which, in the present day, comes to the same thing: since those for whom he is writing, are ready at once to admit the truth of the *religion* if convinced of the reality of the *miracles*. The ancient Jews were not."

deceivers. By only not bearing testimony, they might have avoided all these sufferings, and have lived quietly. Would men in such circumstances pretend to have seen what they never saw; assert facts which they had no knowledge of; go about lying, to teach virtue; and, though not only convinced of Christ's being an impostor, but having seen the success of his imposture in his crucifixion, yet persist in carrying it on; and so persist, as to bring upon themselves, for nothing, and with a full knowledge of the consequence, enmity, and hatred, danger and death?"

§ 2d. That no *false* story of Miracles is *likely* to be so attested, is again proved, from the premiss that "no false story of miracles ever *has been* so attested;" and this premiss again is proved in the form of a proposition which includes it; *viz.* that "No other miraculous story *whatever* is so attested."

§ This assertion, again, *bifurcates*; *viz.* it is proved respecting the several stories that are likely to be, or that have been adduced, as parallel to the Christian, that either

1 §. They are not so attested; or

2 §. They are not properly *miraculous*; *i. e.* that, admitting the veracity of the narrator, it does not follow that any miracle took place; as in cases that may be explained by *false perceptions*,—*accidents*, &c.

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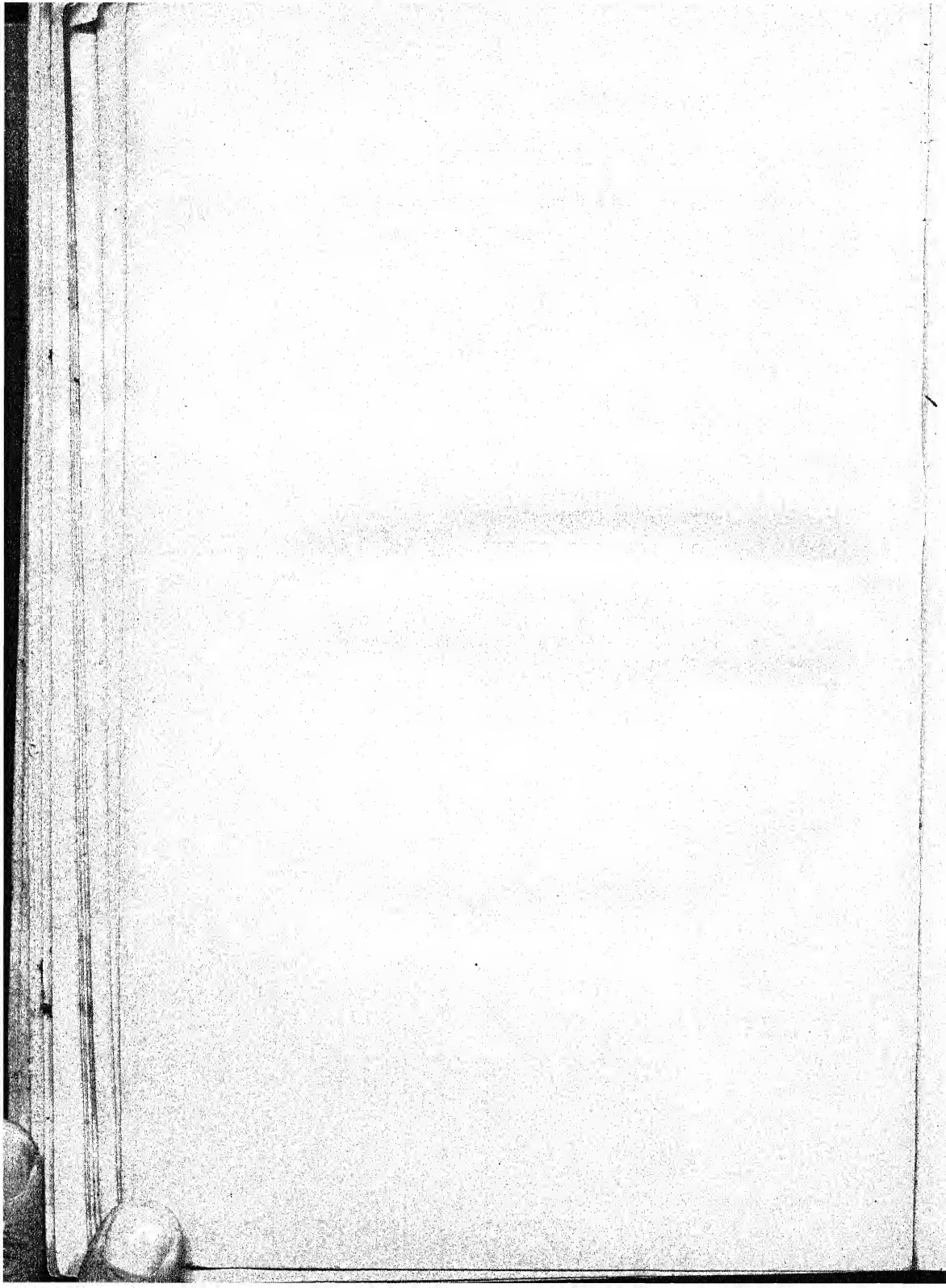
In this way the learner may proceed to analyze the rest of the work, and to fill up the details of those parts of the argument which I have but slightly touched upon.

It will be observed that, to avoid unnecessary prolixity, I have in most of the above syllogisms suppressed one premiss, which the learner will be able easily to supply for himself. *E. G.* In the early part of this analysis it will easily be seen, that the first of the series of cumulative arguments to prove that the propagators of Christianity did suffer, would at full length stand thus:

"Whoever propagated a religion unwelcome to the Jews and to the Gentiles, was likely to suffer;

The Apostles did this;

Therefore they were likely to suffer," &c., &c.



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| ३३ भाग २                                                 | :     | १४  | :   | तथा                          |
| ३४ तथा भाग १                                             | :     | ८   | :   | हिन्दी और<br>अङ्गरेजी        |
| ३५ बेकन्ज़ नावम् आर-<br>गनम् बेकनीयसूत्र-<br>व्याख्यान } | :     | १२  | :   | संस्कृत और<br>अङ्गरेजी       |
| ३६ पुनः शोधित और }<br>मुद्रित तर्कसंग्रह }               | :     | १०  | :   | तथा                          |